



Johnston of Montreal, "On the Application of the Serum Diagnosis of Typhoid Fever to the Requirements of Public Health Laboratories." He demonstrated there for the first time the feasibility of sending blood dried on paper long distances through the mails, and making correct diagnoses in cases of suspected typhoid fever, a practice now common in every public-health laboratory.

I cannot but pause here a moment to pay tribute to Dr. Johnston in recognition of his services to the Association and to the cause of public health. His early death took from us one of our most useful and brilliant members, and cut short a scientific career already notable and full of promise.

#### *Lomb Prize Essays*

In 1884, Mr. Henry Lomb, of Rochester, New York, set an example which we wish might have been followed by others, by offering \$2,000 to be awarded as prizes for essays on subjects selected by himself.

The contest attracted wide attention, and more than fifty essays were sent in, coming from foreign countries as well as America.

The awards were made at the Washington meeting, in 1885, as follows:

1. Healthy Homes and Food for the Working Classes, by Victor C. Vaughan, Ann Arbor, Michigan.

2. The Sanitary Conditions and Necessities of School-Houses and School-Life, by D. F. Lincoln, Boston, Massachusetts.

3. Disinfection and Individual Prophylaxis against Infectious Diseases, by George M. Sternberg, Washington, D. C.

4. Preventable Causes of Disease, Injury and Death in American Manufacturing and Work-Shops, and the Best Means and Appliances for Preventing and Avoiding Them, by George H. Ireland, Springfield, Mass.

These *Essays* were published as a separate volume and went through three edi-

tions. The essay of Dr. Sternberg was revised and enlarged, and published in our *Transactions*, Volume XXV, 1889. For many years it was the leading work on disinfection in the English language.

In recognition of his services, Mr. Lomb was made a life member of the Association.

#### *Journal*

For many years the need of a medium for frequent communication between workers in the field of public health had been felt. Neither the annual volume, the quarterly publication, nor the affiliation with the *American Journal of Public Hygiene* had satisfactorily filled this need, which was becoming increasingly urgent as the field of health work enlarged and the number of workers increased. At the Milwaukee meeting, in 1910, a resolution was adopted creating a Committee on Journal, authorizing and directing this committee to provide for the publication of a monthly journal. The first number was issued in January, 1911, under the title JOURNAL OF THE AMERICAN PUBLIC HEALTH ASSOCIATION. In 1912 the name was changed to AMERICAN JOURNAL OF PUBLIC HEALTH which it still retains.\* From the beginning it has taken a leading position among scientific journals, and the premier place among those devoted to health. Its value to the Association cannot be estimated, keeping our members in touch with the organization during

\*In 1891 a quarterly was established, entitled, *Journal of the Massachusetts Association of Boards of Health*, the first number of which appeared in January of that year, published by W. S. French, Newton, Massachusetts, who was probably also the editor. It was the official organ of the organization from which it took its name. Dr. Samuel H. Durgin, president of the A. P. H. A. in 1902, became editor in 1903. The next year Dr. H. W. Hill became managing editor, and under the direction of Doctors Durgin and Hill the *Journal* grew and extended its usefulness. In 1904, Volume XIV, No. 4, it became the *American Journal of Public Hygiene*, still retaining its function as the official organ of the Massachusetts Association of Boards of Health. In 1907 it became the official organ of the Laboratory Section of the A. P. H. A., and in 1908 of the Association, including the new sections on Municipal Health Officers and Vital Statistics. In 1911 the new JOURNAL OF THE AMERICAN PUBLIC HEALTH ASSOCIATION continued as the AMERICAN JOURNAL OF PUBLIC HEALTH.

I am indebted to Dr. Victor H. Bassett, of Savannah, Ga., for much of this record.

# American Journal of Public Health

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JULY, 1921

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the move increased our expenses considerably, we believe that the close association with other societies has advantages which will prove more than compensatory. New York is our great center of life and human interests, a city visited by many thousands throughout the year, and it is our hope that new interest will be aroused in our members by having our headquarters easily accessible to visitors from all parts of the country.

The urgent need of the Association is a greatly increased income. The most obvious method of obtaining this is by enlarging our membership, though it must be pointed out that for several years past the membership dues have added but little to our net income, since almost the entire amount is spent in service to the members. Drives for new members have in the past been successful, and our membership has increased in a most gratifying manner. The business depression of the past year has prevented us from making any extended effort to gain members, and has caused many resignations. Specialism in public health, which is much in evidence, is also a menace to our membership, since new societies are constantly being formed having for their object the consideration of some special branch of preventive medicine now represented by a section of our Association. "The platform of the Association is, in length, breadth, and thickness, sufficient to accommodate all who are interested in human conservation." (Rankin.)

Health is not the monopoly of any group or class. It is the common heritage, and should be the common property of all, and one of the objects most dear to the heart of our Association is to give to everyone the store of knowledge we now possess. It is true to-day, as in the time of Hosea, that "people are destroyed for lack of knowledge." For some years we have been trying to finance a popular health journal, written in non-technical language, which would present to the public in attractive form and style those facts of life and good liv-

ing which should be known to all. We have not yet succeeded, nor have we been able to interest any philanthropist in the plan. Perhaps the very broadness of our platform is an inherent weakness. It is generally easy to obtain money for the relief of suffering but hard to get it for the prevention of that same suffering. Some other societies which concentrate their efforts on the prevention of a single disease have been more fortunate in enlisting the interest of wealthy persons.

When Mr. Lomb gave the money for his *Prize Essays*, he said: "I see what you want. You have an abundance of light, but your light must be hidden under a bushel because you have no means to disseminate it. I propose to assist you, if it is acceptable." We continue to hope that some far-sighted philanthropist may be brought to appreciate the opportunities offered in this field, which has up to the present remained fallow. Thus financed we are confident that the JOURNAL would soon become not only self-supporting, but a handsome source of revenue, furnishing much needed funds for the extension of our activities.

We were born at an opportune moment, and have lived in a period which for all time will be remarkable for its scientific achievement. "For countless generations the prophets and kings of humanity have desired to see the things which men have seen, and to hear things which men have heard, in the course of this wonderful nineteenth century. . . . In the fulness of time, long expected, long delayed, at last science emptied upon him, from the horn of Amalthea blessings which cannot be enumerated, blessings which have made the century forever memorable; and which have followed each other with a rapidity so bewildering that we know not what next to expect." (Osler.) It is good to have lived in such a period, but it is better to have taken an active part in the events which have made that period notable, and this we can with confidence claim, especially as regards the biological sciences,



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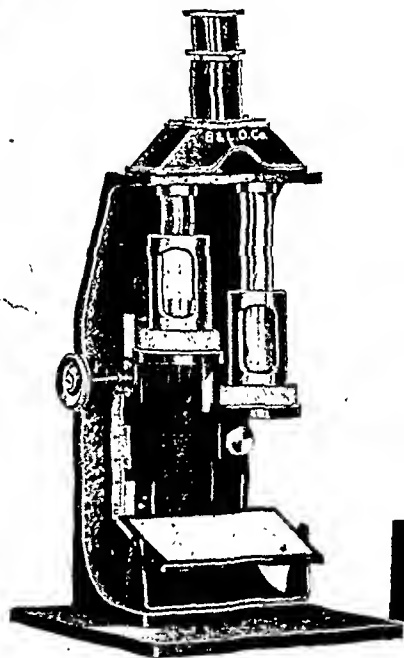
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above all others, the man to whom, more than to any other, we owe our existence, our founder and first president, who charted our course and stood at the wheel during the early years of our voyage, who stands today an example of all that our Association holds most dear, a

man pre-eminent both as a citizen and a sanitarian, Dr. Stephen Smith.†

†The remainder of the presidential address, which is devoted to biographical sketches of Dr. Smith and of the presidents of the A. P. H. A. who are now deceased, cannot be included in the JOURNAL, but is printed in full in the Jubilee Volume, *A Half-Century of Public Health*, Mazyck P. Ravenel, M.D., editor.



## WATCH FOR THE REPORTS OF THE SEMICENTENNIAL MEETING

The December issue of the JOURNAL has been arranged primarily with the object of bringing to the members in printed form as many as possible of the more important and timely papers and committee reports presented at the Fiftieth Annual Meeting in New York City last month.

For economy of space, only those historical papers presented at the general sessions are published in the JOURNAL which are not printed elsewhere. With the exception of part of the presidential address, therefore, the reader is referred to the Jubilee Historical Volume for several of the half-century reviews in specific fields.

Abstracts of the business transactions of the Board of Directors and of the various sections will appear in the December issue of the News Letter, out December 28. Information of timely interest and a retrospect of the annual meeting will be published in this number.

In the January issue of the JOURNAL, to be published January 7, will be published another group of very important annual-meeting papers and reports, together with the resolutions adopted by the Association and certain of the sections.

Future issues of the News Letter will contain the revised list of Association committees, the new constitution of the A. P. H. A., the proposed model constitution for the sections, and other matters of primary interest to the members, while the JOURNAL will continue its policy of publishing the scientific papers of the annual meeting as rapidly and as impartially as possible.

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Practical results had already begun to flow from such observations. Lister, stimulated particularly by the work of Pasteur, had first used in March, 1865, a crude form of carbolic acid for a compound fracture, and in May, 1866, he had his first great and unquestionable success. In a letter to his father dated May 27, 1866, he writes:

"There is one of my cases at the Infirmary which I am sure will interest thee. It is one of compound fracture of the leg; with a wound of considerable size and accompanied by great bruising, and great effusion of blood into the substance of the limb causing great swelling. Though hardly expecting success, I tried the application of carbolic acid to the wound, to prevent decomposition of the blood, and so avoid the fearful mischief of suppuration throughout the limb. Well, it is now eight days since the accident, and the patient has been going on exactly as if there were no external wound—that is, as if the fracture were a simple one. His appetite, sleep, etc., good, and the limb daily diminishing in size, while there is no appearance whatever of any matter forming. Thus a most dangerous accident seems to have been entirely deprived of its dangerous element."

The new knowledge made its way slowly. Dr. Keen points out that little attention was paid to it in this country until Lister visited the Centennial Exhibition in Philadelphia in 1876, and read a paper on the antiseptic method before the section on surgery of the International Medical Congress where its reception "was anything but enthusiastic." Keen himself, however, became an ardent convert. "At that time I heard him (Lister) and became fully convinced of the truth of the 'germ theory' and of the value of his antiseptic method. When I went on duty at St. Mary's Hospital, October 1, 1876, I adopted the system (and was the first surgeon in Philadelphia to do so) and have never abandoned

it. For me it changed surgery from purgatory to paradise."

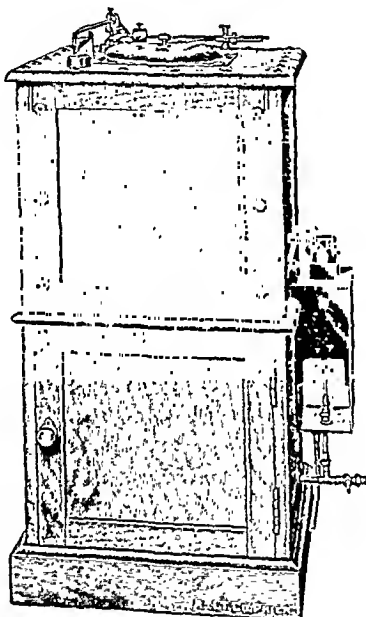
Ordinary infectious disease, however, was still supposed by many to originate *de novo* without any connection with a preëxisting case. In 1876 an experienced physician could write as follows to Dr. H. I. Bowditch, in connection with the latter's Centennial Survey of the State of Public Hygiene in America. "A practice of thirty years, mostly in isolated country farmhouses to which every visitant could be readily traced, has convinced me that typhoid fever, scarlatina, etc., originated *de novo*, as well as from contagion or miasm, proceeding from the sick. I know I once saw a case of typhoid fever and a case of typhus fever originate within a week of each other, in a house with bad hygiene, situated alone in the woods, with only a few new acres cleared about it, and with no possibility of importation or previous deposition of buds, germs, etc." (p. 264).

No mention whatever is made of bacteria or bacteriology in Bowditch's centennial discourse on the "State of Public Hygiene in America" in 1876. In the published treatise there is but one reference in the index to the germ theory, and this is in a discussion of yellow fever in which it is stated that "the germ theory as applied to yellow fever is adopted only provisionally." As late as 1882, in a discussion on "Listerism" in the American Surgical Association, one speaker declared that "the germ theory is at fault and furnishes a very unstable foundation for a system of wound treatment," and another eminent American surgeon stated flatly that he did not believe bacteria were the cause of suppuration.

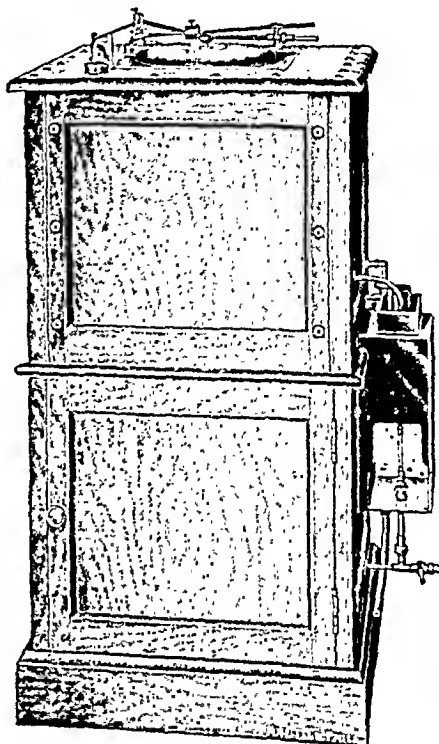
It is quite evident that in 1872 no science of bacteriology could be said to exist, since the fundamental tenets of the science were categorically denied by a considerable body of scientific workers. As pointed out by Keen, the first use of

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what extent are waves of epidemic disease due to microbic variations and to what extent to fluctuation in the resistance of the human host? What are the limits of variation of the immunological races and types and upon what factors do variation and mutations depend? In view of the singular fidelity with which the great outbreaks of influenza resemble one another, is it fair to ascribe the recurrent pandemics to the sudden coming into existence of a special new variety of the influenza microbe? These are all questions that have not yet been given a final answer.

Recent observations on the botulism bacilli incline us to interpret with caution our test-tube experiences with the permanency of immunological varieties. To-day we need, in much the same way as did the bacteriologists of the seventies, methods that will enable us to preserve and study the types of microorganism isolated from the animal body without changing essentially the characteristics these types possess when freshly obtained.

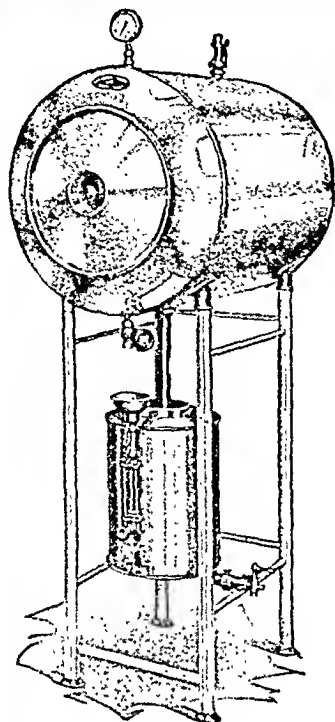
The phase of relatively easy demonstration of the relation of specific bacteria to disease came to a natural conclusion after ten to fifteen years, with the exhaustion of the problems susceptible of solution by the use of the first simple methods. Only the tough nuts remained to be cracked. Some of them, such as syphilis, African sleeping sickness, and yellow fever have since been cleared up, but others, such as smallpox, scarlet fever, measles, and rabies still remain.

In the full flush of their success in discovering the bacteria of typhoid, tuberculosis, diphtheria, and other common diseases, numerous scientific workers next turned their attention to modes of prevention. The new public-health movement came into being not long after this Association was founded. The attempts of the sanitarians of the first half of the nineteenth century were directed largely towards combating dirt, bad smells and

overcrowded and uncleanly living and working conditions; active endeavor now became transformed to the definite aim of preventing infection.

The course to be pursued seemed clear: germs caused disease, therefore germs must be destroyed. One of the first reactions to the new bacteriological knowledge was an orgy of disinfection. The odor of carbolic acid came to be thought almost a guarantee of protection against disease; in surgical operations powerful disinfectants were sometimes used to excess; the floating germs of the air were greatly feared, and received more than their share of attention; elaborate methods of room disinfection were worked out in the hope that they might lead to the suppression of infection, an expectation that has not been altogether realized. Although these attempts to destroy disease germs have not led to a final solution of all problems of disease prevention, it is well to remember that even if limited in application, they were and are based on a logical foundation. We have only to recall the brilliant success of water chlorination to appreciate the practical significance of destroying the germs of disease wherever this is feasible.

The fact that the method of germ destruction is not always applicable naturally suggests a recourse to methods for building up the resistance of the host, so that germs cannot grow in the body tissues, or, growing, have their effects neutralized. A second great development in the application of bacteriology to public health was ushered in when the production of diphtheria antitoxin in the early nineties focussed attention on the phenomena of immunity, and especially on the use of antitoxins and vaccines in preventing and curing disease. Several of the greatest triumphs in preventive medicine have been achieved in this field; mention may be made only of smallpox, diphtheria, and typhoid. But even here it is evident that infectious disease is not being altogether done away with by such procedures. Although the demonstration



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Finally, it cannot be forgotten that the share of the living parasite in producing disease is often quite subordinate to other factors which really determine the extent and nature of the invasive progress.

While much still remains to be discovered there can be no doubt that the acquisition and popularization of knowledge about sources and modes of infection have been some of the chief factors in the public-health progress of the past fifty years. The outcome of all this bacteriological research into methods of destroying disease germs, immunizing susceptible persons and educating individuals how to ward off infection is so familiar that it need hardly be dwelt on here. It may be summed up briefly.

In most civilized countries the total death-rate from all causes has diminished since 1872, so that it is now one-half or a little less than one-half what it was fifty years ago. The total mortality from the principal infectious diseases, however, including typhoid, diphtheria, and pulmonary tuberculosis, has been reduced in still higher ratio so that it is now about one-fifth of its former figure. Whatever may be thought about the biological wisdom of attempting to prolong for a few months or years the lives of congenitally weak babies—and strong social instincts urge us to this course—there can be little or no difference of opinion about the value to the community of the thousands of lives

saved from diphtheria, typhoid, tuberculosis and other definite infections of childhood and early adult life.

It may be pointed out finally that those infections whose mortality has shown relatively little change since 1872, are probably most of them infections entering through the respiratory tract—measles, whooping-cough, pneumonia, influenza—about which there are either great gaps in our knowledge or no adequately developed methods of community prevention. Water-borne, food-borne and insect-borne infections are mostly in the list of decreasing or vanishing diseases; sputum-borne infections for the most part have not been brought under control. The most conspicuous exception to this generalization, pulmonary tuberculosis, bears witness to the truth that endeavor in this field is not hopeless. The history of past progress indicates that bacteriological and epidemiological investigation of both the acute and mild respiratory infections is to-day one of our most urgent tasks.

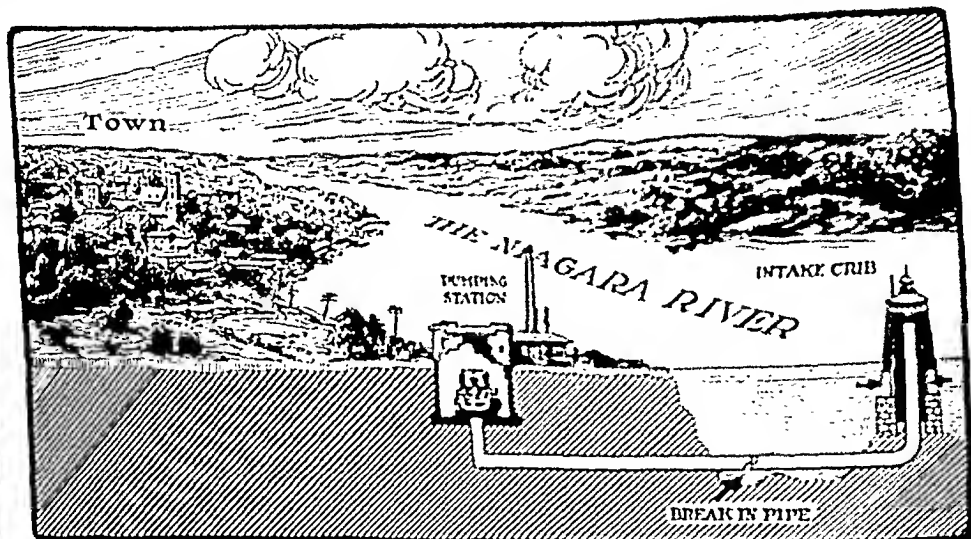
If we were to try to sum up in one sentence the influence that bacteriology has had upon public-health practice in the past fifty years it would be to say that while progress on an empirical basis would doubtless have been made in any event, bacteriology has given precision and definiteness to every step, has led directly to the most important triumphs in preventing disease ever achieved by the human race and holds out much promise for the future.

---

**Standard Railway Sanitary Code.**—This reprint, made available for general distribution, takes up such points as transportation of persons having communicable diseases (with special attention to the chief diseases), the certifying of water and seeing to the care of containers, methods of cleaning and

disinfecting cars, special attention on the sanitation of cars while in service, including dining cars, the sanitary condition of railway stations, and the hygiene, construction and maintenance of railway construction camps.—*U. S. Public Health Report, No. 604.*





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Tonawanda's lesson was ever so costly and sad. One day the pipe line was broken near the shore and water polluted with disease-bearing, death-inviting germs entered the city supply.

The grip of typhoid fever settled upon the town—the horror of water-borne pestilence, the disgrace of a preventable epidemic. Day after day her citizens were stricken—disease and death multiplied, until over two hundred people lay ill from typhoid and many more from severe intestinal trouble.

And then, on August 11th, W & T Apparatus and Liquid Chlorine, the first aid, the permanent aid of so many stricken communities began to sterilize every drop of Tonawanda's water. The epidemic was instantly checked and soon its deadly work was over.

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\*Reference: Article by Theo. Horton, Chief Engineer, N. Y. State Dept. of Health

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medical experts before the courts of justice; the Aldecoa Hospital for the observation of the supposedly insane; the chemical and bromatological laboratory, and a disinfecting brigade, consisting of five men. The infirmaries of the jail and prison were used for the inmates of those institutions.

Vaccination against smallpox was efficiently carried on by official and private organizations. The official vaccination center, established by the Provincial Assembly of Havana, should be cited on account of its good works. Dr. Vicente Luis Ferrer, who practiced animal vaccination since 1868, and Drs. Domingo Cabrera Diaz Albertini, Porto and Jose Luis Ferrer should be mentioned as having done efficient vaccination work in their private practices.

The institute for the treatment of hydrophobia, founded by Dr. Juan Santos Fernandez as a part of the *Cronica Medico Quirurcica de la Habana*, was the first of its class in the new world and from that institution there emerged all our laboratory men.

Several hospitals were in existence during this period. There was San Felipe y Sanitago, which replaced San Juan de Dios Hospital, and later became the magnificent *Nuestra Senora de las Mercedes* for men and San Francisco de Paula devoted to women. (Children did not have hospitals nor special wards for their assistance.) San Lazaro Hospital for lepers was another hospital. The unhygienic military hospital, *El Principe*, replaced in 1897 by the barracks known as Alfonso XII, converted later into Hospital Numero Uno, also was established. It has since been rebuilt and named General Calixto Garcia.

The sanatoria were private institutions for the medical assistance of the Spanish and foreign population, especially for those suffering with yellow fever and venereal troubles. Mention should be made of the *Quinta del Rey*, Garcini, *Integridad Nacional*, which afterwards became Los Angeles Hospital for the poor

whom the municipal barracks were insufficient to lodge; the *Beneficia*, *Purissima Concepcion* and *Covadonga*, which, respectively, were controlled and managed by Spanish societies known as the *Centro Gallego*, *Centro de Dependientes* and *Centro Asturiano*; the Gynecological Clinic of Dr. Casuso; Dr. Enrique Lopez' Polyclinic, Dr. Weiss' Obstetrical Clinic, and Dr. Mendez Capote's Surgical Clinic at Cardenas.

The cemeteries were the following: *Espada's*, where, on account of the saponification of the soil, the interments were made in special vaults (*nichos*) above the ground; the excellent *Cristobal Colon's*; the Baptist and the Chinese, not to mention other provisional ones now closed.

Food and water problems were frequent at the *Pescaderia* (sort of fish market), which was in the worst condition; at the *Cristina*, *Tacon* and *Colon* markets, all unhygienic, and the *Bodegas* (grocery stores), where all kinds of goods for daily use were sold.

Milk was sold either by bringing the cows to the doors of the residences or in cans in which it was subjected to all kinds of adulterations.

Water was obtained from wells—cisterns which collected rain water. It was obtained also from the "*Zanja Real*" (royal ditch), an open aqueduct with all possible contaminations, from the waterworks of Fernando VII and finally from the *Albear Canal*, which brings the water from the *Vento* springs to the city.

There was no drainage system whatever, the dwellings having latrines which contaminated them. Most of the streets were not paved at all. Inasmuch as the governing elements did not worry themselves about the public health, it is no wonder that the governed people should accept as something necessary the existence of yellow fever, smallpox and all the other transmissible and avoidable diseases, in spite of the protest of scientific men, particularly of those of good will who founded the Hygienic Society in or-

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sanitary services under the control of the municipalities.

#### CUBAN PERIOD

This begins with the establishment of the Republic on May 30, 1902, and it may be separated into three distinct parts: (1) from that date until September 29, 1906, when the provisional administration of the United States Government began; (2) during that period until the ruling power was entrusted anew to the Cubans on January 28, 1909, and (3) from that day, in which the Executive Department of Health and Charities was inaugurated until the present time.

During the first part, health matters were entrusted to the Superior Board of Health, the superior chief and the local boards of health of each of the several municipalities of the Republic. The vital statistics services were united, and thus the Superior Board was able to obtain statistics directly from the original documents signed by the attending physicians when they issued the death certificates. The *Manual of Sanitary Practice* was published. This was a scientific and administrative compendium regarding sanitary problems. The sanitary ordinances were drafted, and all the precepts that should be known by the governing elements and by the governed were published in a concise form.

At this time yellow fever reappeared in our country, imported from New Orleans, where it had been epidemic until 1907.

During the second part, Major Kean, fully aware of the faulty municipal organization for carrying out the sanitary precepts of Order No. 159 of May 17, 1902, brought about the nationalization of the services, entrusting them to a National Board of Health, a national executive officer and local officers, all under his immediate supervision.

Improvements were made in quarantine matters, immigration, quarantine hospitals, sanatoria hospitals, etc. Ha-

vana's drainage and pavement contract was signed together with those of other cities, and the Consultive Commission prepared the study and the code of the principal laws, through which was created the Executive Department of Health and Charity.

That is the beginning of the third part of this period, in which the Republic aimed again to carry on its destiny.

Dr. Matias Duque has the glory of being the first secretary of health, and to Cuba belongs the honor of this advanced step in matters of public health.

The organization of the department is in full compliance with Decree No. 894 of August 26, 1907, which nationalized the sanitary services of the Republic; but besides, there were added those corresponding to the old charity department, formerly subjected to special laws and to regulations dictated by the central board of charity, established during the first American intervention.

Six men have held the secretaryship since the foundation of the department: Dr. Matias Duque, who resigned on October 27, 1909; Dr. Manuel Varona Suarez, who held office from that date until May 20, 1913, when there was a change of administration; Dr. Enrique Nunez, who died in active service on September 16, 1916; his successor, Dr. Raimundo Menocal, who also died in office the following year, on August 1, 1917; Dr. Fernando Mendez Capote, appointed on account of his experience as director of charity, who resigned the office on May 20 of this year, and Dr. Juan Guiteras, an expert pilot in sanitary affairs, who has helped both as a member of the Commission of Infectious Diseases since 1900 (later serving as its president) at the side of Finlay and Gorgas, and who was Director of Health since that office was created in 1909. Undoubtedly he will be able to direct it safely from the secretaryship he holds.

During the Cuban period the Department has had to fight, besides the outbreak of yellow fever before mentioned,

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In answer to an invitation extended by the American Public Health Association in 1889, the *Consejo* joined the Association. In 1890, Mexico for the first time sent its delegates to the meeting of the Association in Charleston, S. C.

In 1917 the *Consejo* became the *Departamento de Salubridad Pública*. On May 10, 1920, Dr. Gabriel Malda was appointed chief of the department and a little later Dr. Alfonso Pruneda was made general secretary. Since they have been in office the department has accomplished works of great importance, as may be seen by the following paragraphs.

#### VITAL STATISTICS

As already stated, the *Consejo Superior de Salubridad* began its work in 1872 by adopting regulations concerning birth and death registrations and by the organization of statistics. However, it was not until 1879 that Dr. Agustin Reyes presented a plan for the keeping of statistics which was adopted and used for several years.

At that time there was no census of Mexico City. The last one, taken in 1790, had shown it to be a city of 112,926 inhabitants. In 1879 Dr. Reyes estimated the population to be approximately 260,000 inhabitants. In 1890 the second census showed a population of 326,594. In 1910 the number had grown to 471,066. A new census has not yet been taken, but it is possible that the City of Mexico now has nearly a million inhabitants.

When the "Committee on Nomenclature and Form of Statistics" met in Montreal in 1894, the adoption of Dr. Bertillon's nomenclature for diseases and causes of death was proposed, with the purpose of making statistics of the different countries uniform so that they might be compared. As a result, in 1895 the President of Mexico declared the above named nomenclature adopted. Mexico has since adopted all the modifications approved by the international commissions that have made revisions in nomen-

clature and classification of causes of death, and has had representatives at each of the three congresses of 1900, 1910 and 1920.

The statistics pertaining to morbidity were first compiled in 1880 under a plan presented by Dr. N. Ramírez de Arelano.

In the Health Convention in 1905, Mexico in common with other nations promised to send out its statistics of mortality.

#### MORTALITY IN THE CITY OF MEXICO

Until 1901 the number of deaths in the city had been considered between 42 and 59 per thousand, an average of 49.4. Since 1902 the mortality rate has been between 40.6 and 57.3 per thousand, an average of 45.8. The death rate in recent years is less than in the years before, but it is not possible to estimate its average as no census has been taken since 1910. It is certain, however, that the mortality in the City of Mexico remains very high if we compare it with European and American cities of the same population.

The principal causes of death are:

1. *Pneumonia and Broncho-Pneumonia*. The revision of the mortality statistics from 1879 to 1920 shows that pneumonia caused 23.15 per cent of all deaths during that period. This may be due to our high geographical situation and to the sudden climatic changes to which we are exposed.

2. *Tuberculosis*. As early as 1890 Dr. Licéaga was engaged in preparing a paper to be presented to the International Congress at Berlin in which he told of the prevalence of tuberculosis in Mexico. Later in 1907 he strove to combat tuberculosis, and the following year at the Sixth International Tuberculosis Congress, which was the first to meet in America, he discussed the means of carrying on the campaign, and the advantage of placing the patients in fresh air camps or sanitariums. He also proposed

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16.21 per cent as a result of smallpox. During the first years that the school was established, smallpox was the main factor in causing blindness, but it has diminished as a factor. Only in the most recent years have the cases of blindness on account of it increased. Ophthalmia neonatorum, which in the earlier years caused 30 per cent of blindness has increased until in 1910 to 1914 it reached the astounding figure of 75 per cent of cases. This was due to the fact that for a long time the prevention of this terrible disease was neglected, but recently there has been great activity in combating it, making it obligatory for physicians and midwives to report all cases. The small patients are treated in their homes by special personnel and nurses. The inspecting physicians visit the patients as often as necessary, and if the family is indigent the department takes care of the case free of charge.

The beneficial results of this campaign are clearly apparent. From December, 1920, to August, 1921, 45 cases were reported, 42 of which were completely cured, the remaining have curable lesions in both eyes.

To intensify this campaign midwives and the public in general have received instructions by means of conferences, pamphlets and posters

3. *Yellow Fever*. Yellow fever has prevailed in the towns and cities of our seacoast for more than four centuries. From 400 years ago, Veracruz was visited by the epidemic every summer. It was not until 1903 that the campaign against yellow fever was started. It included the isolation of sick people and suspected ones; the destruction of infected mosquitoes found in the houses of the patients; the extermination of larvae of *Stegomyia fasciata* and obturation of the clean water deposits where they lay their eggs; destruction of the places where mosquitoes hibernate, and desiccation of lands.

The beneficial results of this campaign were felt the following year. From

October, 1901, to September, 1902, there were in Veracruz only 721 cases of yellow fever and 274 deaths from it. In 1904 there were in the whole Republic 201 cases and 98 deaths. In 1906 there were only 171 cases in the whole country.

At last in 1907, Veracruz reached the point where it did not register any cases of yellow fever during the summer, and in the whole country there were only four cases.

Last June the disease reappeared but, thanks to an active campaign carried on against it, it has greatly diminished. The Rockefeller Foundation gave very valuable services in this campaign.

The efficiency of the work carried on in Veracruz was demonstrated in the following case: Four infected people arrived in the city and yet gave rise to no more cases of yellow fever, a fact that may be due to the practical absence of mosquitoes.

The Department recently organized the First Yellow Fever Convention, to hear reports of all that has been accomplished against this disease since last January, and to discuss the plans of the campaign for the year 1922.

4. *Bubonic Plague*. In December, 1902, the plague made its appearance in the seaport of Mazatlán and was exterminated in six months. Last May the Department learned of some suspected cases of pest in Veracruz. Dr. González Fabela was sent to the infected city equipped with the best means for exterminating the epidemic.

The methods put in action included the isolation of actual and suspected cases; vaccination of the whole population; preventing people living in the infected houses; the improvement or destruction of houses in such condition as to shelter the rats and mice which disseminate the plague; the prevention of accumulation of dirt; and especially one energetic campaign against rats. The plague probably had reached Veracruz through infected rats from New Orleans. The first case



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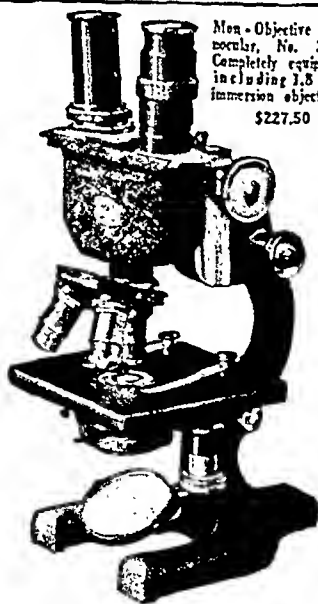
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at the same time the chief of the department. The technical work is carried on by him as director and by some commissions formed by members of the *Consejo*.

For the fulfilment of all its labors, the Department had a budget of 2,570,000 pesos for this year. The actual president is Dr. Gabriel Malda and the general secretary, Dr. Alfonso Pruneda. Both have the same rank within the *Consejo Superior de Salubridad*, which consists, in addition, of the following men: Drs. Angel Brioso Vasconcelos, Francisco Castillo Nájera, Fernando Ocaranza, Nicolás Ramírez de Arellano, Alberto Román y Rafael Silva; the engineer, Ernesto P. Malda; the attorney, Antonio Ramos Pedrueza; the chemists, Ricardo Caturegli and Miguel Cordero; the veterinary physician, Eliseo Zendejas, and the general inspector of the Department, Dr. Jesús E. Monjarás.

The present directors of the Department are perfectly aware that only a long education will be effective in reducing our high mortality rate and increasing the average duration of life which at present is very short. It is undoubtedly true that only education will solve our hygienic problems and will give better health habits to our children.

But since all this cannot be learned through verbal lectures only, but requires practice and example, the Department decided on the creation of the Institute of Hygiene, where physicians, engineers, teachers, and others are given practical instruction in all subjects relating to scientific hygiene. The Institute trains

sanitary physicians and engineers, public-health officers and nurses for dispensaries, sanitariums and schools.

Relations between the Rockefeller Foundation and the Department become more and more cordial every day, especially since the Rockefeller Foundation has shown its friendship by lending its services for the campaign against yellow fever. It has also very good relations with the United States Public Health Service, which very kindly allowed Dr. Mitchel to come to Tampico to cooperate in the campaign against the bubonic plague.

By all that has been said, it may be seen that in Mexico, notwithstanding the difficulties that have arisen since her independence, hygiene and sanitation have been the constant preoccupation of the different governments, and, although Mexico cannot say that she has attained the progress that has been reached in other countries, it is only just to say that every effort has been made to reach that standard and our country is proud of having had such men as Drs. Alvarado, del Rio, Velasco and Licéaga, who worked persistently to better the sanitary conditions of the country.

The increase of the activities of the Department began when Sr. Adolfo de la Huerta was temporary president of the Republic, and continued to progress greatly under the administration of General Alvaro Obregón. Both have shown a great deal of interest in the Department and have helped it in every possible way.

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**National Welfare Bureau in Saxony.**—In connection with the proposal for a new Department of Public Welfare in the United States, it is interesting to note that a National Welfare Bureau was established in Saxony by an order of March 18, 1921. According to the Weekly News Summary of the U. S. Children's Bureau of June 18,

1921, this new bureau is to administer the public welfare law of May 30, 1918. The purpose of the bureau is to coördinate and direct the public welfare work of the country, to regulate the training of welfare workers and to furnish information regarding matters coming within its province.

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There is no further reference to the Board of Health elsewhere in the document.

Even when separate boards of health began to come into existence more generally, they were not much better than the old health committees of the city council.

Any one who could be persuaded to accept an appointment was good enough to serve on the board of health no matter what his lack of qualifications might be. If there was a medical member he had almost to be forced to serve and usually lost caste among his colleagues and was severely criticized by them for consenting to take the appointment.

The theories of those times in regard to the causation of disease and the transmission of infection seem very curious to us now; people believed that "sewer gas" was a cause of disease, notably of diphtheria, and that infection lurked in rooms, articles of clothing, and other objects which had been in contact with the sick person and that they were capable of transmitting the disease to others after the lapse of long periods of time, sometimes even of years. They also believed that infection was transmitted through the air for long distances, even for miles.

An article on smallpox published about the time under consideration shows how that disease was more prevalent among those living on the lee side of smallpox hospitals than among those living to windward and attributes it to the fact that the infection was carried down wind by the prevailing breezes.

Because of these beliefs boards of health spent a great part of their energies in frightening people about the condition of their plumbing and directing their efforts to prevent the spread of disease through infected articles, by fumigating rooms and build-

ings in which a person had been ill with a communicable disease.

They quarantined a house in which there was a case of communicable disease, even placing armed guards around the building to prevent the inmates from breaking quarantine, but their chief efforts were directed against infected articles.

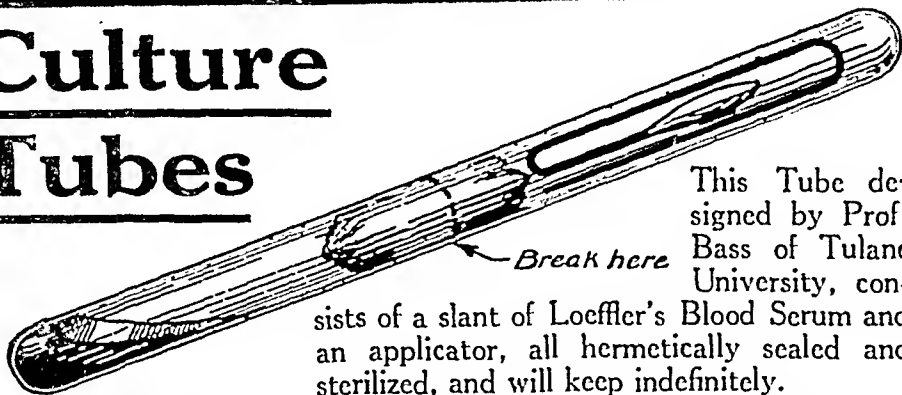
The Massachusetts law, as it exists to-day, directs the board of health to make "regulations . . . relative to articles which are capable of containing or conveying infection or contagion or of creating sickness . . ."

After a patient had been sick for a certain definite time, which, of course, varied with different diseases, he was considered to be well, no matter what his condition might be; the quarantine was raised, the house carefully fumigated and the patient allowed to go about and mingle freely with others.

If a secondary case developed, the public was sure that fumigation had not been done properly, and blamed the board of health for carelessness or neglect. So strongly was the belief in fumigation, as a controlling factor in preventing the spread of infection, implanted in the minds of every one, that boards of health frequently fumigated a school room or even the whole building, when one of the pupils was taken ill with a communicable disease, even though the sick one had not been at school for several days previous to his illness; the theory being that the disease was in the room or in some article therein; that the patient had caught his disease from it, and that others would also catch it, if it was not destroyed by fumigation.

This era lasted for nearly a quarter of a century after the founding of the American Public Health Association, and while we may now smile at its theories and the acts caused by them, we must remember that the men who did them were handicapped by lack of

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the public, almost literally from the cradle to the grave, sometimes even before birth, in its prenatal clinics. The questions to be solved are of very great variety, and the power which it exercises is very great. Perhaps no other municipal department has such power; it can enter a man's house and remove his children to a hospital against his will; it can compel him to spend large sums of money in abating a nuisance or in making his building conform to its regulations; and it can, at times, destroy his property, sometimes without compensation. These great powers carry with them great responsibility, and care is required lest the board, led astray by fads or influenced by popular demand, should unwittingly do injustice.

In spite of its great power a board of health cannot accomplish its best work unless it has its public or at least a majority of it, back of its efforts and working with it instead of against it. To do this it must bend its energies to teaching the public so that it will understand and aid the board, and this education of the public is a function which has been exercised by boards of health from the earliest days to the present time. In the early days perhaps its power of education was less noticeable because the men of that time were to a great extent engaged in educating themselves and had little to pass on to the public. But as their own knowledge increased they gradually began to influence the public and teach it the fundamentals of hygiene as they knew them.

At the present time almost every health department is engaged in educating the public in some way; how it does it depends in great measure upon the size of the department and the amount of money available for the work. Even where no distinct bureau exists, education can be carried on. Letters upon health matters published

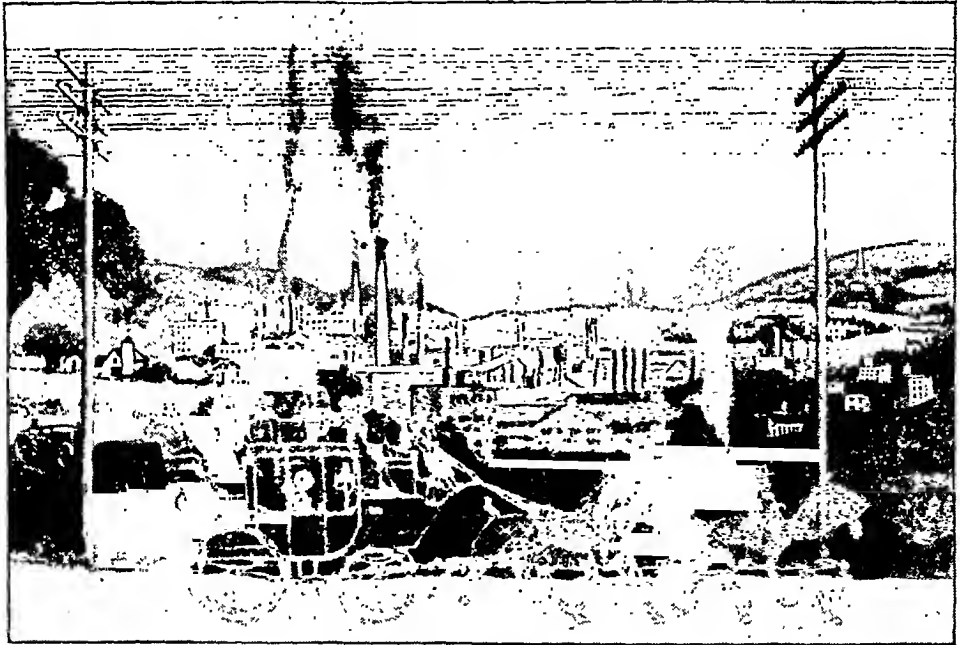
in the local papers, the distribution of leaflets to the children in the public schools, and short talks to local organizations are all methods which are effective.

A very fertile field for education is to be found in the children in the public schools. They are easily interested through the school nurses and take what they have learned home to their parents and help to interest them. In my own city we have been surprised at the intelligent interest taken by the children in the schools in public-health matters, and instances have been known in which the children themselves have influenced their parents to aid the Department in accomplishing its end.

The value of the educational work of a health department can hardly be overestimated, but it is a work which requires great care lest mistakes should be made. It is far better to say nothing than to say something that must be explained away later. In the attempt to "put something over," sound must not take the place of sense nor a well-rounded phrase, of fact.

The local board of health should be the leader in health education in its own community and should strive to be a board of health in literal fact. Its duties as laid down by the law have to do in great measure with disease and the prevention of disease, and the latter is fully as important as the former. It should teach the public under its care how to be healthy and how to keep so, and it can best do this by teaching them to turn to it for reliable information upon all matters relating to health.

At the present time the public is interested in public health and is anxious to learn all that it can in regard to it; public health may be said to be popular, as is shown by the number of unofficial agencies which are engaged



*"... places far apart are brought together, to the present convenience and advantage of the Public and to the certain destruction, in time, of a host of petty jealousies, blindnesses and prejudices, by which the Public alone have always been the sufferers."*  
*From Charles Dickens' Preface to Pickwick Papers.*

## The Advance of Understanding

Even romance of sixty brief years ago could not imagine the great advance heralded by the passing of the stage coach. The railway and telegraph were coming into their own; but the telephone had not been so much as dreamed about.

Yet the wise men of that day saw the imperative need. They saw the value of every step which brought people into closer communication with each other. They

knew this to be the one way to increase understanding; and to eliminate the "host of petty jealousies, blindnesses and prejudices, by which the Public alone have always been the sufferers."

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a question that touches deeply the economic and, therefore, vital interests of the profession.

In view of this latter fact, especially, it can hardly be said that the irritability among medical men is merely a post-war manifestation, and that it will disappear as conditions in general mend and return to normalcy. On the contrary, it is unfortunately very likely that the problem will grow and become even more acute and complex as time goes on. With this consideration in mind, let us now deal more specifically with the apparent difficulties, and determine, if possible, our position and responsibility concerning them.

The chief complaint brought by the medical profession deals with the so-called medical activities of public-health agencies. The medical profession, at least those who have so far expressed themselves on the matter, holds that medical activities should have no part in public-health work, or, as it is put in a resolution by one of the several medical societies which are on record on this matter, public-health departments should not enter upon "campaigns of treatment of any disease or condition." To do so is considered "inimical to the best interests of the public and the profession."

It is further argued, in explanation of how these best interests of the public and the profession would come to grief, that the quality of public medical service would be bound to be inferior, because of the generally lower compensation paid to workers in the public service. It is also claimed that the man of brilliancy and ambition no longer would engage in medicine for a livelihood when he would have the state for his competitor, and that as a consequence all efficiency and progress in the art of healing would deteriorate, and the public would necessarily become the loser thereby.

There can be no question that in the arguments advanced here lies much food for thought. It is, however, not the intention here to discuss all of these arguments in detail nor to urge or defend so complete a program of state medicine as apparently exists in the minds of those from whose resolutions of protest we have just quoted.

All that will be attempted is to discuss and defend the right of public-health agencies to engage in what are called "medical activities."

It is undoubtedly in the main correct to say that all activities of public agencies have for their existence and justification, public opinion or law. While law is public opinion crystallized, it should not be forgotten that very naturally public opinion precedes law, and that therefore practices may be in existence and approved even before they find formal recognition in statutory form. Absence of a specific law, therefore, cannot be looked upon as necessarily meaning lack of approval of and justification for action or method. All law has—or at least should have, and in the future undoubtedly will have—for its fundamental basis the consideration of the rights of the many over the individual.

Out of this principle developed, so far as public health is concerned, the practice of quarantine, or the isolation of an individual who because of disease is considered dangerous to the interests and well-being of the many.

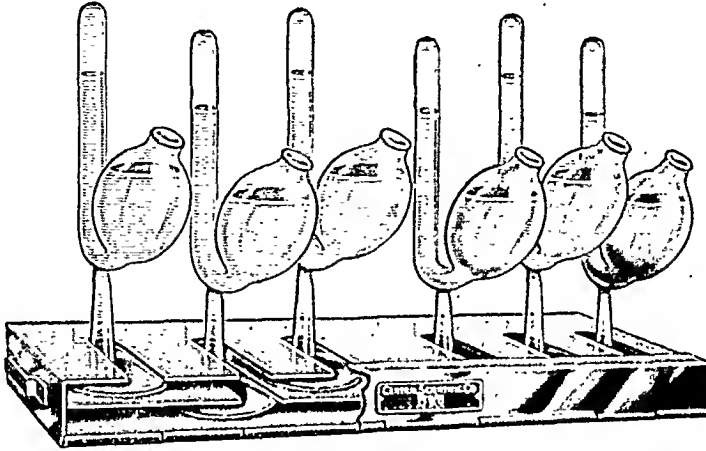
A better understanding of the nature and mode of transmission of contagious diseases, naturally brought with it changes in the defense measures by which society chose to protect itself. Frequently treatment of the diseased person is found to be the most effective means of dealing with the problem of a communicable disease. The choice of treatment, as applied to contagious disease, does not, therefore,



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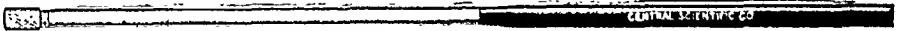
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by treatment at public dispensaries, it certainly seems justified both on the grounds of good business and common sense.

So far, then, as the question of the right to include treatment in the activities of public-health agencies is concerned, this seems amply justified, both on the basis of reasonableness, as well as by public opinion, which has approved of these public activities.

It should be understood, of course, that in all these activities, at least at present, service is rendered only to the poor and the needy. So long as this service confines itself to the poor and the needy, there can be no legitimate grounds on which the medical profession may base charges of having its personal rights and interests invaded. It is true that the term "indigent" is one that gives rise occasionally to dispute. It is not always easy to say just when a case is indigent and deserving free medical attention and when not. In the main, however, it is undoubtedly true that the cases are few where people able to pay receive treatment at free dispensaries. In the few instances where they are seeking service at free dispensaries, it is questionable whether these would be profitable cases for the private practitioner.

It is, nevertheless, unquestionably true that the medical profession finds its particular field of activities more and more encroached upon. This, however, is not entirely due to the activities of public-health agencies.

With the rather tolerant attitude of the American public there has developed in this country a large number of groups outside of the medical profession, who all claim to be practicing the healing art, such as, Christian Science practitioners, chiropractors, and other variants of these types. There is no doubt that all these cults, whether there is merit in their particular method or not, nevertheless, find a fol-

lowing, which in turn means loss of business to the regular practitioner in medicine. The remedy for this situation, however, does not lie in an attack upon public-health agencies, but rather in uniform requirements of educational standards for those who wish to practice the healing art.

Finally, although it is not primarily the purpose of this paper, it may not be amiss, nevertheless, to add a few suggestions for the medical profession that may serve to clarify present misunderstandings, and to that extent assist in maintaining the cordial relationship of coöperation that should exist between public-health agencies and the profession, which is so necessary for the best interests of all concerned.

Obviously, a better understanding of what public-health work is and must do, will greatly help the profession. That means, first and foremost, an understanding of the term "disease prevention." This should be the responsibility of the medical schools. The public is beginning to understand and appreciate the importance of preventive medicine and disease prevention, and public opinion will, therefore, hasten their development.

The private physician will do well to fall in line with this new and growing thought. At the present the practice of medicine is essentially built up on the practice of treating disease once it has developed. The physician of the future unquestionably must prepare himself to prevent the development of disease rather than to deal with it only after it has developed. This will mean a great deal more study and work in eugenics, in physiology, in hygiene, and in dietetics before the practitioner can become the competent adviser of the public on how to keep well. There can be little doubt that in this direction lies the future development of medicine. The public will be ready

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## VITAMINS AND CERTAIN ASPECTS OF THEIR RELATION TO PUBLIC HEALTH

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*Reader in Physiological Chemistry,  
University of London,  
London, England.*

This authority warns against the commercial exploitation of vitamins. If people would recognize the real situation and eat more fresh vegetables, fruits, eggs and milk, they need not under ordinary circumstances purchase expensive and possibly inefficient proprietary articles, nor worry about vitamins. Natural sources for these products abound on every hand.

NEARLY ten years have passed since Professor Gowland Hopkins demonstrated the fundamental role played in animal nutrition by minute quantities of hitherto unrecognized food constituents which are now generally termed the vitamins. So important and interesting a discovery has not failed to attract an ever increasing amount of attention, since it was soon appreciated that the new knowledge would render necessary a modification of the theories of dietetics and today there are few who would deny the fundamental facts which the researches of Hopkins have established; on the other hand there appears to be a real danger that a misguided interest in the vitamins may cause a swing of the pendulum in the opposite direction.

Recent years have provided many examples of this exaggerated counterswing, which appears to be in many cases proportional to the importance of the original discovery, and in such cases the attainment of the equilibrium point at which the whole subject is viewed in its right perspective is much delayed. This is of course largely caused by the activities of the quack, and to a less extent by the well-meaning but frequently scantily informed pseudo-scientist, neither of whom has been slow to recognize the money value of radium, vaccines, and now vitamins. Popular articles on vitamins in the lay press are today being encountered on every hand, and the man in the street is beginning to ask what are these substances and what is their function in the body. Naturally the quack is

nouncement on the medical problems involved.

Your Committee further recommends that the Executive Board of the American Public Health Association be authorized to coöperate to this end with other official bodies, should it be invited to do so.

ROGER G. PERKINS, M. D.,  
*Chairman*

GEORGE W. MCCOY, M. D.

PETER H. BRYCE, M. D.

## DISCUSSION

DR. HAVEN EMERSON: Mr. Chairman, and members of the Section: May I have the privilege of proposing that the report be accepted and its conclusion acted upon? In supporting that motion I wish to say that this is substantially the conclusion that has been arrived at by the Council on Health of the American Medical Association. In the nature of events, the Council of the American Medical Association has looked at it from a somewhat different point of view. There may be differences of opinion as to the productiveness of a research on this problem, but one never knows what will turn up from a technical research, and there is always benefit to be had from an impartial survey of any question on which there are differences of medical opinion.

I would be inclined to go further with regard to the recommendations that have been submitted. The report mentioned international control, recognizing that that is of course the first step, and the absolutely fundamental step. I do not think that in any way prevents nations or states from taking an active part in the control, as the report suggests international bodies should.

Further than that, it seems to me that it would be of advantage perhaps, coming from a medical professional body exclusively, that we should indicate that a large part of the local control should bear upon the control of physicians through the issuance of licenses to practice, and that there is a substantial responsibility of the licensing board of our state, and those who maintain the standards of medical practice, to see that their power is exercised to properly control the use of the drug, and to prevent use of it by physicians who abuse their professional privilege. Men of that sort should be stopped at once, and it is the duty of the local committees and the board of health to see that they should be stopped.

I would call attention to the fact that we believe that the existing national laws are unnecessarily hampering to the practice of medicine, and certain improvements in those laws should be made, and I see no impropriety in the American Public Health Association joining with the American Medical Association in endorsing a law that the use of codein should

not be subjected to the limitations that are now in force.

And I suggest that we should jointly request the release of apomorphin from the restriction that is now placed upon it.

In these ways, I think we can go back to a more reasonable administrative control. Furthermore, I think there is a serious injustice in making the practice of medicine bear the burden of a revenue law which did not contemplate imposing on physicians the burden of adding income to the government in the course of carrying out their profession.

JUDGE CORNELIUS F. COLLINS: My impression is that the difficulties with regard to the regulation of the drug situation are due to the governmental or sociological side of it. I think we are in a sad state of affairs, where doctors have been intimidated and terrorized, where they have not been permitted to engage in their practice in accordance with the dictates of their best judgment.

I feel also that some doctors have been too timid and have failed to perform their duty in the way that the laymen understand their oath requires them to perform it. A sick man is entitled to treatment. A person who is suffering is entitled to treatment.

We understood the Harrison Law to mean that a doctor could, in the legitimate practice of his profession, treat in accordance with the dictates of his judgment, the only requirement being that of good faith. The law of the state of New York preceded the Harrison Law, and we acted on that theory.

I have some figures which I want to call to your attention, that will bear out the argument which I am about to make. In 1913, the Cocaine Law went into effect, and when that went into effect it opened up a sore in judicial life. The prosecutors of our different counties did not know the extent to which the drug evil had expanded, and with the enforcement of the Cocaine Law, the police gathered up a large amount of sufferers from heroin. They were brought into the courts; we had no law with which to punish them.

In 1914 we passed the law. The law as it read in 1914 gave the impression to some of the medical men that they were forbidden to prescribe drugs for the treatment of this habit. That impression was wrong. It was assumed that the doctor had the right to treat.

In 1914 we had 1,415 cases in Special Sessions. In 1915 we had 1,503 cases, and in 1916 we had 1,686 cases. This was 10 per cent of the whole business of the court. The courts were cluttered with a large number of drug addicts, coming in from what might be termed the underworld type.

In 1917 there was a fall, because in the meantime a statute had been passed regulating the right of the practice of doctors and calling specifically to their attention the fact that they had the right to treat drug addicts; and the statute was further amended in the next year giving a more detailed direction to the medical profession as to the manner of procedure. This excited some opposition because of the regula-

preparing to supply a certain amount of more or less accurate information together with an assurance that his particular proprietary article will supply all the necessary vitamins. I foresee that the magic word vitamins will be a gold mine for the patent medicine manufacturer unless the public is educated to rational conception of these substances and unfortunately the scientific literature is fast becoming choked with much that represents a very poor standard of work in this important field.

I have also an impression that the layman is gradually being induced to think that the vitamins are so many elixirs of life, and that the food of the gods is no longer a conception of fiction, but an established fact. In this lies the danger, and it would be well if it were generally recognized that the vitamins, remarkable as they undoubtedly are, are no more essential to the animal body than are many other food components about which we know a great deal more. Everyone would appreciate the folly of an engineer who devoted his whole attention to the lubricating oil without any regard to the supplies of fuel or the renewal of the damaged parts of his machine. To enable the human body to perform its work satisfactorily the food supply must be adequate and well-balanced from many standpoints. First, the supplies of foods which may be burnt in the body as sources of energy must be adequate; secondly, building material either for construction or repair must be provided not only in sufficient amount but of the right type; thirdly, certain indispensable inorganic salts are necessary; and finally, other factors about which we know very little but which we term the vitamins, must be available in the required amount. It is doubtful if any one of these requirements can be truly considered as being more important than the others.

Research on these unidentified dietary constituents has led to a fairly satisfac-

tory differentiation of three distinct substances, or perhaps three classes of substance, which all appear to act in extraordinarily minute amounts in assisting to maintain the nutritive condition of the animal body at a normal level. As an example may be quoted some recent experiments by Dr. Zilva of the Lister Institute who informs me that an amount of crude cod liver oil as small as 3 milligrams is sufficient to supply the daily requirements of a rat for one of the three vitamins, the factor A. Now I have been able to show that in an oil such as this the activity is not due to any known component, and that from the 3 mgn. must, therefore, be subtracted the weight of the contained fatty acids, glycerol, cholesterol, lecithin and pigments, which would leave only a very small fraction of a milligram to represent the active substance. Probably it is very largely this extraordinary potency of minute amounts which has caused the three recently discovered food factors to be grouped in one class and labelled the vitamins. On the basis of chemical and physical properties there is very little excuse for this classification, and indeed there are many arguments against it. It is now somewhat generally believed that the normal functioning of the thyroid gland is dependent upon a minute but regular supply of the element iodine in the food. If this association were not understood today it is probable that we should have the group extended to include a hypothetical thyroid vitamin.

Classification of these substances and speculation as to their action is not only useless but dangerous until laboratory experiments have solved the problems by accurate methods.

Meanwhile since the public is beginning to take an interest in vitamins, the question does arise as to how the present knowledge should be handed on to them; for it is important that the man in the street should know certain of the broad principles of the science of nutrition, no

just such a resolution as that which was read to-day will reach somewhere.

This resolution will bring the medical men and the sociologists together, and those who have to make the law also, so that we can get something great, so that men will not be terrorized, so that we can get the Attorney General to tell us what he means by regulations. If you do not, there is an evil besetting our community. The purpose of this law is not to harass the drug addict, the purpose of this law is not to treat him as a criminal. It is to treat the improper use of narcotics. We have fallen into the error of regarding an addict as a criminal. Some of them can be on the other side, fighting for us.

I want to say this: I believe that custodial care is the best. I believe you have reached a period where you have got to have custodial care. But in the test of two months of hospitalization of the treatment of this habit, they lose sight of this, that over 90 per cent of those who have been treated in the hospitals have after release had a relapse, and that there has been just as much success in the treatment of this habit by the general practitioner as there has been in the hospitals.

DR. ROYAL S. COPELAND: I have been very much interested in the comments of Judge Collins. I am not clear yet whether he condemns the Health Department of the city of New York, or whether he commends it. He apparently commends the Health Department for enacting some amendments to the Sanitary Code which would make it possible to deal with this problem, and he apparently condemns us for having had a system of registration.

Even judges have short memories. My early instruction in this subject came from this speaker. I remember he was one of those who proposed the registration. Probably these things have no bearing on the problem.

We have a great problem which to my mind is a public-health problem. Judge Collins says there are 40,000 addicts in the city. I do not know how many there are. When we had this system of registration, about 10,000 registered. We have taken 3,000 through our hospitals at Riverside. The Judge said 90 per cent of these have lapsed. I do not suppose the percentage is important, but it is very much less than that. I think that 50 per cent would probably be more nearly correct.

We are only picking leaves. We discussed what to do with this problem, when it is to my mind as simple as anything in the world. The reason why we have a narcotic problem is because we have narcotics. Two years ago we imported into this country 546,000 pounds of opium. I thought because of all the agitation here, and the tricks of the sight-seeing people, and the creation of sentiment, that we would get a marked decrease in the amount of narcotics brought in, but as a matter of fact we brought 640,000 pounds, that is, fifty grains for every man, woman and child in the United States, and there is no other civilized country on the face of the earth where the importation

of opium exceeds three grains per capita. In other words, we are bringing in sixteen times as much opium per capita as any other country.

Don't you see the problem? Why do they lapse? There is nothing that makes me so disgusted as to have somebody get up and say there is something mysterious about this problem. You can take any patient off the drug in ten days without suffering. Why do they relapse? Because this patient does not have any moral regeneration, and when he comes back into the society of his family, the first time he has any physical disorder or suffering of any sort, or moral disorder, he goes back to the drug. Why does he go back to the drug? Because he can get the drug.

What will we do about it? To my mind the remedy that is proposed in the report to-day is all right, if you do not care when you settle it. You appoint a commission and God only knows when the commission will arrive at any conclusion. Haven't we thought about this long enough, so that we know what to do about it?

I would have this country, through its Public Health Service, determine arbitrarily the amount of opium which it should receive. We will suppose that it is 25,000 pounds, and that that is ample for our needs, instead of 640,000 pounds. I would have that manufactured under the auspices of the government, and then dispensed through legitimate channels, just as we do whiskey to-day. I think any legitimate physician should get any morphine he needs, and then I would say that this country should absolutely prohibit the exportation of opium and its derivatives.

What happens when this stuff is exported? It is shipped to Canada, where we lose track of it, and it is smuggled back into this country and sold on the streets of New York. One-half of all the addicts in this city are under twenty-five years of age, and one-third are under twenty years of age, and yet we are permitting this damnable business to go on when by a simple act of Congress this whole thing can be done away with.

Why do we spend our time talking about conditions when this great organization can say, "We demand the suppression of a traffic more dreadful in every respect than the liquor traffic?"

DR. JAMES F. ROONEY: I have been very much interested and very deeply moved by the orations which we have just heard. I feel that the time has come in this question when appeal should not be made to sentiment, when exaggeration should not be indulged in on either side, when the real, true aspect of this minor health problem should be considered upon an unemotional basis.

What have we actually, in regard to the problem of drug addiction? And here now I want to say that I most heartily wish to second the motion for the adoption of the report of this Committee, and to concur in Judge Collins' statement that it is the first real, honest, scientific attempt to investigate this prob-

matter how rough and ready may be his knowledge. The economic problems presented by the large towns today are many and complex, and it is doubtful if any single problem is of such vital importance as that of the food supply of the masses. Every day this food supply is becoming more and more artificial in character, and this process must necessarily continue as long as the populations of the towns increase and the web of their interdependent lives becomes more and more complex. The future of preventive medicine in Western Europe in the near future must be largely centered on improving the food of the people if any great progress is to be made. The complex of physiological reactions which constitutes resistance to disease is susceptible in an extraordinary manner to the influence of restricted diets, and there can be no simpler method of ensuring a high immunity for the people than by making it possible for them to obtain good natural foods at cheap prices.

It is perhaps in this connection that the relationship of the vitamins to the public health is most apparent. These substances, whatever their nature may be, are undoubtedly of very great importance to the health of the people, and especially of the infants and children. The prevalence of rickets, of bad teeth, of defective growth and of low resistance to infective diseases is a high price to pay for our departure from nature's rules.

Every reader is aware of the beneficial effects of a diet rich in fresh vegetables, fruits and dairy produce, and today there does seem to be an abundance of evidence in favor of the view that these effects are largely ascribable to the valueamins. In fact Professor McCollum of Johns Hopkins University, Baltimore, Md., who has devoted many years of patient work to the study of nutrition and who has contributed largely to the advances which have been made in investigating the vitamins, has suggested that we should term milk and the green

vegetables "Protective foods," and there is much to be said for his suggestion. Certainly everything possible should be done to increase the consumption of these foods and to render them accessible at cheap prices. I venture to think that no investment would yield the nation so rich a return as a vigorous campaign for scientific dairy farming with large supplies of cheap milk of good quality and a widespread extension of the allotment system, now unfortunately on the decline.

Many questions are being asked as to the effect of cooking on vitamins in foods and there is a somewhat general impression abroad that the usual processes of boiling and stewing destroy these dietary factors. Recent work shows, however, that only the vitamin C is liable to this destruction to any serious extent.

If one studies the average diets of the masses it is soon apparent that a large proportion of the population is subsisting on a food intake dangerously low in certain of the vitamins. The high price of dairy produce has caused a great fall in the consumption of butter with a corresponding rise in the sale of margarines which seldom, as at present prepared, contain as high an amount of the vitamin A as butter fat, although the majority of manufacturers are making genuine efforts to make good this deficiency, and there is also a decrease in the consumption of fresh milk in the poorer quarters.

Experiments made recently indicate that under ordinary circumstances the destruction during the usual cooking processes is not serious, except perhaps in the case of the anti-scurvy vitamin, which is apparently more liable than the other two. Nevertheless, it is advisable that the every day diet, especially of young children or of expectant or nursing mothers should contain as much fresh fruit, salads, milk and butter as is possible, for we have definite evidence that in order to provide a milk of high nutritive value for her offspring a mother must herself receive ample supplies of

Association was appointed for a specific purpose, and as far as I have been able to study that report, it did not touch the purposes for which it was appointed, but instead of that went into an entirely different question.

As regards the first proposition, that this Association join with the American Medical Association in exempting codein, I trust we will not do it. I do not think the evidence on which Dr. Emerson makes that statement is sound. There is an abundance to the contrary, and I think we should do as the committee proposes, and that is to study it, and, for God's sake, do not let us join with the American Medical Association on this question.

DR. JACOB DINER: It is needless to say that a man who has had an experience of thirty years must have come in contact with the narcotic situation. It is also needless to add that the lucid remarks of Judge Collins, than whom there is probably no one who has given greater study to this subject, deserve a great deal of thanks on behalf of every man who is interested in his fellowman.

But we have been discussing whether drug addiction is a disease, or whether it is an evil, or whether it is an infectious disease or a moral disease. All of these things are important.

But the most important thing, it appears to me, is the answer to the question: Why is it that in spite of all the rules and regulations which have been made and interpreted, the consumption and the importation of narcotics, as illustrated by figures given by Dr. Copeland, has increased?

Why is it that we have more and more narcotics brought into this country, and bear in mind that we take into consideration the drugs which are imported legitimately and are recorded. We do not take into consideration the quadruple quantity which is smuggled into this country. Doesn't it strike you that the interference with the legitimate practice of medicine has created a demand, and that the law of demand and supply has come into play there? That where the honest addict, not the criminal addict, has found his family physician, because of fear of imprisonment, refusing to treat him, that he has only one choice, or perhaps two, either to become registered in the Board of Health, or go to the underworld, and as long as he has the money, he will go to the underworld, and while treatment is being refused to him, there will be a continual supply of the drug, especially when there are such high prices being paid for it.

It seems to me that the recommendation of this committee is the first sane and safe one that has been recommended before any body of professional men interested in this subject. It seems to me that what has been brought out proves that there should be an investigation, not by a closed organization, not by a small body of men whose preconceived ideas on this subject will prejudice them along certain lines. Let us have an investigation by an unbiased and fair-minded body of scientific men who

will first determine what is drug addiction, and then recommend steps which will enable them to handle this situation clearly and intelligently.

And above all, don't let us permit the restriction of practice of the legitimate practitioner. I think every man should be entitled to an opportunity to go to his own doctor.

DR. JOHN N. HURTY: It appears to me that we disregard, in our efforts to solve all of these problems, a fundamental principle. Neither by law, nor by education, nor by prayers, can you change the human character. You cannot instill noble and high ideals into men. The roots of them must be there.

There are some men possessed of passions that they can hardly control and do not control. They have no moral force to control them. We endeavor to stop stealing by law. We hold it down, but a thief is a thief, just the same, even if he has restrained himself from stealing.

I found thirty-seven bank cashiers in the Leavenworth Prison, and all of them were Sunday-school teachers, and had been teaching morals, and yet they were thieves. They had been teachers of morals, trying to instill them into children, and yet they themselves were thieves.

You cannot regulate this subject by law. We can restrain it and hold it down. "We blunder on through love and hunger, and always will." That remark struck me forcibly indeed. "We blunder on through love and hunger." Those are the controlling forces of this world.

The evolutionists tell us that one day two highly organized cells came together, seeking enjoyable sensations. And from that sprang all life. Two highly organized cells, where they came from they do not know, seeking pleasurable sensations, joined, and behold, life on this earth appeared.

I have been behind the drug counter in my early days, and I have studied these things from the point of view of the physician and the point of view of the sanitarian, and you may put this down, that a sanitary problem cannot be solved by caring for the victims of insanitation. You have got to get down to the cause, and that is the only way to solve it. You must find what is the cause of the trouble, and attack that, and in that way you can solve it. By merely attacking the result, as we have been doing for the past several years, you absolutely get nowhere but increase the trouble.

I agree with Dr. Copeland. Let us do away with the damnable stuff.

DR. LYMAN F. KEBLER: I do not know whether you want to prolong this discussion, but I think it is a particularly vital and interesting one in many ways.

When the law became operative and required declaration of the morphine on the label, we were surprised to find the extent to which it was used. First came the soothing syrups, most of them having morphine or some opium derivative. Then was brought to our attention the situation that so-called treatments or



those indispensable substances which are to be transmitted through her milk to her young. This leads one on to a renewed emphasis of the vital importance of breast feeding, and the percentage of women who fail to rear their children would be greatly reduced if their nutritive state were improved.

After all, the whole problem of the vitamins as they affect the diet of the people is merely one of common sense when the essential facts are considered. Our grandmothers knew naught of vitamins but they did appreciate the value of wholesome fresh food, and would have no other.

The question of ensuring an adequate supply of vitamin-rich foods to young children is perhaps the most urgent matter which the country will have to face very soon. We know that the effect of a deficient supply of these "building stones" in youth, especially in early youth, is very far reaching and may undermine the health in after-life to a serious extent. It is not sufficient to apply measures which will ward off the more severe consequences of the deficiencies, such as rickets and scurvy. The treatment must be deeper than that, and more recognition must be given to the borderland of disease which is today so much neglected.

I refer to the condition where the symptoms of ill health are not sufficiently marked to attract any particular attention. In the United States recently most remarkable results have been obtained with a number of children of this type. They were typical of the undersized, ill-developed, and mentally backward class of child encountered in such sadly large numbers in the large towns. Groups of these children were given extra milk every day at school whilst parallel groups were given an equivalent amount of food units (calories) in the form of bread and margarine. The acceleration in the rate of growth of the children receiving milk, and the rapid development of their pre-

viously stunted powers as compared with the control group was most striking. How these apparently insignificant dietary factors may profoundly alter the nutritive state of the body is also well illustrated by an example recently quoted by Professor Hopkins. In a well-known boys' school it was observed that the lads were not in their usual good health, that they were in generally poor form of lacking keenness both for work and games. The divergence from the normal state was so marked that an attempt was made to ascertain the cause. The sanitary state of the school was found to be excellent and all possible solutions of the problem were investigated without success until the dietaries of the boys were examined. It then appeared that they were receiving practically no fresh fruit or vegetables of any kind, and that formerly they had been able to obtain fruit from an outside source with ease. The deficiency in their diet was made good by the inclusion of fruit and like magic the normal health and vigor of the lads returned.

Examples of like character could be quoted indefinitely, many of them making most interesting reading; as does the story of how the health of the troops in the Eastern Theatres of War was much improved in the later stages of the campaign by cultivating large tracts of land behind the line to provide the men with vegetables, but the examples which have been given are sufficient to emphasize my point.

Perhaps one of the most important discoveries recently made in research on the vitamins is that the value of many foodstuffs as sources of these substances may be very variable, though as far as we are at present aware this is true only of foodstuffs of animal origin. The vitamins are synthesized only by plant tissues and their presence in foodstuffs of animal origin will depend on the diet of the animal. It is therefore not safe to assume that all samples of butter and milk have high vitamin value, since the

and it is founded on a treatment. We began with a cure. If we never had had a cure for the drug habit, we would not have had this

trouble. The treatment is going on now from Atlantic to Pacific in every state of the United States, and nothing has been accomplished yet.



## REPORT OF THE COMMITTEE ON DRUGS AND NOSTRUMS

Presented before the Food and Drugs Section of the American Public Health Association, at the Fiftieth Annual Meeting, New York City, November 18, 1921, and adopted by vote of the Section.

THE importance of drug administration as a health matter has been in the past largely unheeded and health laws pertinent to this subject have not been vigorously enforced. The explanation of this seeming indifference on the part of health agencies is difficult to find. Up-to-date health administrations provide visiting nurse, district physician, tuberculosis, venereal and child hygiene clinics, laboratory diagnoses and milk inspection, but at the same time make possible the defeat of their main object—the conservation of health—which is vitally attacked so long as the public countenances the advertising and sale of the nostrum.

The question may be naturally asked in what manner drug and nostrum advertising and sale affect the public health. In our opinion the answer may be made in a few words: the proprietary concern encourages self-diagnosis, inspires fear, and having accomplished these things, it encourages self-medication and places a responsibility of treatment whether necessary or not in the hands of the individual.

The medical profession is partly responsible for the nostrum evil, since it has never taken a stand against self-medication and ignores the drug department of the crossroad store. Here, the proprietor and clerk, who are often incompetent to distinguish between general merchandise of good or inferior quality, are regarded by the customers as qualified to prescribe the proper tonics, pills or treatments for an unlimited variety of ills, real or fancied.

As pertinent to the human welfare aspect, the economic feature of the nostrum evil should be emphasized. It is self-evident that the retailer, who in a large proportion of cases is a member of the pharmaceutical profession, should be protected; nevertheless, the manufacturer to whom the major profits accrue has no legitimate claim for such protection or perpetuation.

A vast sum of money is spent in worthless nostrums. As long ago as 1905 it was estimated that seventy-five millions was expended by the American public annually for nostrums. It is manifest that a still greater potential sum is squandered in idleness consequent to the interminable waiting for cures. Finally, many valuable lives are shortened because of ill advised dependence on nostrums instead of scientific treatment.

Every health administrator undoubtedly has had instances of fatal self-medication brought to his attention. Knowledge of the situation is frequently obtained first from appeals for the aid of physician or nurse. On arrival, these agents find it impossible to save the victim's life. Furthermore, they are confronted with the thought that adequate supervision might have saved the patient from death.

In any consideration of this subject, mention should be made of our present defective health educational program relative to the nostrum. No sane individual will deny that there is a demand on the part of the public for the nostrum. This demand has been created and kept alive by the proprietary manufac-

amount of these accessory substances present will depend entirely on the food of the cow. In collaboration with Dr. Zilva, Capt. Golding and Miss Coward, I have recently shown that the amount of the so-called vitamin A present in butter or lard may show marked variations traceable in the diet on which the animals have been fed, and similar observations have been made in the United States on the anti-scurvy potency of milks derived from cows fed on different rations.

There will be in my opinion a very important consequence of this discovery when the true significance of these remarkable dietary factors is grasped by the public health authorities. It will concern the establishment of a method for standardizing the vitamin content of certain foodstuffs, particularly of butter and milk. It will be obvious how relatively unimportant would be a quibble over a small difference in the percentage of moisture in a sample of butter, if the value of the butter as a source of the growth-promoting factor were neglected entirely.

Finally, I would like to draw attention to the question of proprietary vitamin preparations which are already appearing on the market in considerable numbers. It is going to be a very difficult matter

for the public to distinguish the good from the bad amongst these products. Of those which have already appeared there are several which I have found to be entirely inactive, and which are therefore being supported by inaccurate claims; whilst others are more or less genuine in that they can act as sources of one or other of the vitamins. The aim of the patent food manufacturer appears to be put on the market a preparation for which it can be claimed that it supplies all three vitamins in a concentrated form. It is perhaps unwise to criticise this aim too severely, for there may be a real but limited need for such a product; as for example, to supply the requirements of exploration parties. The general attitude of the public towards proprietary vitamin preparations should be a guarded one, since it must be remembered that on every hand may be obtained cheap and natural sources of these indispensable substances.

If the people would only recognize the indispensability and irreplaceability of the natural foods, and eat more fresh vegetables (watercress, salads) fruit, milk and eggs they would have no need under ordinary circumstances to purchase expensive and possibly inefficient proprietary articles, nor to worry very much about vitamins.



**Vaccination and Anti-Vaccination in England.**—A writer in the *International Journal of Public Health* states that vaccination in England has gone down, though not out. Most people regard it as they do the door marked "Emergency Exit" in the theatres. The anti-vaccinationists have been so active and this movement has become so strong that it is a national problem. The author advances the theory that if the medical profession had been more closely united in the cause of public health, beginning forty years ago, the public could have been

better educated to realize the possible dangers of lack of vaccination. There is now, however, nothing to do but wait for a lesson which will bring people to their senses. London, for instance, offers a field for a disastrous outbreak, which would be extremely difficult to cope with. The English problem is a good example of what the United States can expect unless health officials are on the alert to combat the false doctrines of the anti-vaccinationist.—Stephen Paget, *International Journal of Public Health*, March-April, 1921. (J. A. T.)

our understanding is correct, there is no provision in many states for the seizure, under due process of law, of adulterated or misbranded preparations. It is certain that any law on this subject must have a seizure clause in it, if it is to be effective.

2. Enforcement of state laws. The enforcement of these state laws should be placed in the hands of local and state health departments, since it is obvious that this is purely a public-health problem.

3. Technically trained enforcement officials with broad health views are essential, since this is a health problem and not one of agriculture. Our grievances with the present state system have already been touched upon, and since in most instances Departments of Agriculture enforce these laws and since their interests are mainly agricultural, their activities concentrate upon foods and animal feed matter to the consequent neglect of drugs and nostrums.

The second suggestion pertains to adequate advertising laws. At the present time there are advertising laws on the statute books in most states. However, in most instances such laws are merely technical and no attempt is made in their enforcement except by the various advertising clubs whose efforts are directed only toward the field of fair advertising, and whose viewpoint consequently is not the health one. It is, therefore, suggested that there should be adequate advertising laws with sections devoted to misbranding matters, and the enforcement of such sections should be in the hands of health agencies.

Until model advertising enforcement laws pertaining to these matters are passed, it is necessary to have legislation amending the food and drug laws in such a way that newspaper or magazine misrepresentation may be considered in court as label misbranding. At the present time enforcement agencies have no control over advertising misbranding except as may be carried on by coöperation

between the newspaper interests and enforcement agencies, which coöperative effort can hardly be considered as control.

To be effective, such advertising legislation should be comprehensive enough to enable exclusion from the mails of any publications bearing advertisements of products which have been already indicted in any court. The constitutionality of such a measure might be questioned. Nevertheless, efforts towards such legislation should be made, since in our experiences in the past, indictments under food and drug laws have not necessarily meant vigorous prosecution, and trials have often been indefinitely postponed while the activity against which indictment was made proceeded unmolested.

It is the desire of this committee to emphasize the fact, that health and medical agencies in the past have been rather negligent of their opportunities in the control of medical advertising. No earnest or concerted effort at coöperation with advertising interests has been made in the attempt to exclude fraudulent proprietary advertisements from high class publications. It may be mentioned that the Scripps-McRae League has already established a censorship over various forms of medical advertising, and this apparently has been done voluntarily in the interests of good business. Much more could have been accomplished even without the aid of laws had our agencies realized their opportunities in the field of intelligent coöperation and constructive criticism.

The third suggestion pertains to pharmacy laws and licensure and emphasizes the importance of local pharmacy law administration and a licensing system. At the present time, pharmacy law enforcement is charged to the various state pharmacy license boards and to say the best for such a system, this is a very inadequate arrangement. These licensing boards conduct examinations and license

# SANITARY INSPECTION—A REVIEW

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In a rapid survey of the field of sanitary inspection, the author suggests shifting the emphasis by health officers from the legal and technical to the human aspects of the problem. By outlining the status of each he concludes that the technology receives more attention than do the people from many public health workers. It should be kept in mind that permanent health improvement must be predicated on the awakening of a sanitary conscience.

“**E** DUCATION is better than legislation. It is slower, but surer.”  
—C. V. Chapin.

1. The Legal Aspect of Sanitary Inspection.—In order to define the principles of law upon which the activities of sanitary inspection rest, it is necessary to have clearly before us what the function of sanitary inspection is. A fairly definite conception of this function may be obtained from the knowledge that, in almost all government action concerned with the preservation of the public health, the idea of nuisance has assumed an important place. The field of activity of sanitary authorities, therefore, has been developed through legal precepts, which have restricted this field to the investigation of nuisances. This restriction is, of course, not a narrow one, since it permits of the control of practically all those elements which affect the health of the community.

A nuisance may be defined as any condition which annoys or gives trouble. In the more restricted phraseology of the law, it becomes anything which is detrimental to persons or property. The importance of a nuisance is determined usually by the number of persons whom it may affect. The simplicity of this fundamental principle of the law of nuisances is apparent. The complexity of current legal controversies into which

local health authorities are frequently led rests more upon the inability to allocate the condition in question to the class of nuisance, than upon the failure to motivate the wheels of the courts.

A mere definition of terms, however, does not clarify sufficiently the legal concept of nuisance which every health officer should have. We must employ some yardstick, some measure, however qualitative, other than that of the chronic pessimist to whom everything and everybody is a nuisance, or of a Ruskin who viewed the entire industrial development as one despicable, though massive, nuisance. For the purpose of our present discussion the simplest summary of nuisances resolves itself into two contrasting types. Of the first type, the so-called legalized nuisances are to be considered. This class rests for its sanction upon “the principle of the greatest good of the greatest number.” Acts which come under this sanction are protected usually against indictment or civil suit. For, although legislatures may not arbitrarily violate rights of private persons, they may and sometimes do secure a public benefit, even though at some sacrifice of individual comfort and convenience.

On the other hand, legislative enactments often come to our aid through the authorization to local bodies to declare acts, practices or things to be nuisances.

5. Organizations promoting their sale, advertising and distribution.

6. Agencies through which they are retailed or distributed to the public.

BE IT RESOLVED, that the drug and nostrum committee study this subject and compile data in regard to nostrums; and

BE IT FURTHER RESOLVED, that this committee submit a model state law and a model ordi-

nance for local enactment placing the enforcement of advertising and sale laws of nostrums in state and local health authorities' hands.

HAROLD J. KNAPP, *Chairman*

C. A. ABELE

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## METHODS OF COOPERATION AMONG MUNICIPAL, STATE AND FEDERAL OFFICIALS ON PHARMACEUTICAL PREPARATIONS

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THERE is to my mind no more fertile field for intensive work in the interest of health than the enactment and enforcement of state and municipal laws intended to control the purity of drug products. Many states have passed laws similar to the Federal Food and Drugs Act, and some cities have ordinances and organizations controlling the quality and purity of drugs. Many of these measures have been beneficial. However, some states and cities have no laws and many of the state and municipal governments having authority are not able to enforce their drug laws in as efficient a manner as they undoubtedly desire. The chief cause is, perhaps, a lack of knowledge of this class of products and the lack of properly trained chemists to determine the quality and strength of drug preparations. As strange as it may seem, many men trained in the enforcement of food laws and in the analysis of food products seem to think it is beyond their ability to understand the assumed mysteries of drug composition. Herein is found one of the main reasons, in my judgment, why existing state and city drug laws are not more intensively enforced. Many state analysts have not felt themselves qualified to examine drug

preparations and their executive officers have shared this viewpoint. It may be assumed that executive officers entrusted with the enforcement of state and municipal drug laws have thought it essential to have specially trained analysts for drug work, and because of lack of funds and scarcity of pharmaceutical chemists, they have in many cases made inadequate use of the drug laws on the statute books. While very desirable, it is not necessary to have specially trained men for this work. In so far as the analysis of straight pharmaceuticals is concerned, any food analyst can soon become proficient in the methods of analysis as given in the United States Pharmacopoeia and National Formulary. The methods and standards as set forth in these authoritative works are easy of accomplishment and interpretation.

Every proprietary and patent medicine, however, presents an individual problem, but not an insurmountable difficulty by any means. There are no standards or methods of examination for this class of preparations. In view of these facts, the analyst whose experience has been entirely or largely with food products will require training for a short period in the essentials of work on such articles. The

Such nuisances are the complement of the first type mentioned above and are designated as statutory nuisances. Legislative authorization at once supplies the health officer with an asset greater than that already granted him by the precepts of common law. Statutory nuisances so-called have their origin in the principle that legislatures have the right to enlarge at any time the category of public nuisances. This legal principle has been one of the saving clauses in the development of a machinery continually growing to meet the needs of an advancing sanitary science. For what is not a nuisance today, in our present state of knowledge, may become one tomorrow, as the unknown is further probed. Legal support, though delayed, usually has followed closely upon the emergence of scientific truths.

Two additional questions remain to be answered in our survey of the legal background of sanitary inspection. These are concerned with the responsibility and the remedies for nuisances. Here again, stripped of its professional phraseology, a simple axiom appears, namely, he is responsible for a nuisance who either creates or continues it. It is hardly desirable on this occasion to attempt to illustrate the varied possibilities in such cases as joint liability, liability for letting premises with a nuisance thereon, for the continuance of a nuisance, the liability of a tenant, municipal responsibility for nuisances, etc. When such cases occur in the routine activity of the health officer, their consideration rests upon the principle already enunciated. The difficulties of fixing responsibility for nuisances are dependent upon local conditions and need not be discussed at this point.

With a nuisance defined and the responsibility therefor fixed, what legal recourse is available for the determination of a remedy? Fortunately sanitary law presents several different kinds of remedies based upon private and public action, under either civil or criminal procedure.

These may include either suit for damages, injunctions, or fines or combinations thereof. Since health authorities frequently adopt the procedure of a suit for the collection of a penalty for the violation of a health ordinance, it is apparent that the strength of such ordinances lies in their penalty clauses. These penalties, of course, must vary with the importance of the offense, for if they are too heavy, though impressive, they are rarely enforced.

Now that the basic principles of sanitary inspection law have been outlined, though crudely, it would be interesting to learn what direction sanitary legislation should take in the future. Are our health laws too general or too specific? Should future laws accurately define nuisances, a procedure which some co-workers maintain the scientific knowledge of methods of prevention of disease now makes possible? Are general powers necessarily coincident with uncertainty of action? Do local health officers find it easier to enforce specific acts or generalized laws? Do necessary health reforms wait upon crystallization of support in the form of statute or law, or upon that underlying and more elusive element—public sentiment, which frequently is lacking even when law exists?

In the problems of sanitary inspection, however, the legal aspects, though interesting and often puzzling, form only a part of a survey. For the legal power to act is useless in the absence of the technical apparatus with which to inaugurate such action and without the scientific data for the recognition and elimination of the objectionable thing or condition. It is clear, therefore, that for sanitary inspection to be effective it must be built firmly upon a definite technology, upon a series of scientific facts and observation. Of what then does this technology of sanitary inspection consist?

**2. The Technology of Sanitary Inspection.**—Sanitary inspection needs, for the successful accomplishment of its

up their prescriptions or that they may give direct to the patient. This certainly is a very fertile field for state and city control. State and city control is essential also to supplement the federal law, for in some cases the federal authorities are unable to take action where a doubt exists because of the fact that we cannot secure evidence of interstate shipment, or because we find products removed from their original packages—circumstances which, however, do not prevent state or municipal action.

Physicians in every state, through the medical associations, should demand protection from the unscrupulous manufacturer and unscrupulous dispenser, and work for laws and enforcement of laws which will afford that protection. The great trouble is, however, that the physician is apt to rely on the brand or manufacturer's name that appears on the label. It is well known by some of us that there are preparations made by reputable manufacturers that are not what you might expect from the labels. Take a very simple thing like fluid extract of cascara. The Canadian Government has shown that there are practically no two extracts thus named which are alike, and this applies also to those made in the United States. Again, in the case of another example—paregoric—I know of my own personal knowledge, outside of any connection with the government, of a large firm that has in the past made paregoric from morphine sulphate colored with caramel. I do not believe the physician who prescribes paregoric is desirous of giving his patient colored morphine sulphate. Take pills and tablets: the physician certainly prescribes these with a definite idea in mind, and that is to get a certain result from a given amount of certain ingredients. Yet, unfortunately, it frequently happens that some ingredient is missing entirely or is very deficient, or perhaps two or three times the amount supposed to be present is found. This, of course, is a menace to health in the

case of such potent drugs as heroin, cocaine, morphine, etc.

Many manufacturers make a pretense of having analytical control of their products. Do not be misled by a fine chemical laboratory into believing that all products are as carefully analyzed as the fixtures might indicate. Find out the qualifications of the chemists employed, and then review the analytical cards of a number of different preparations and ascertain whether the laboratory is for the protection of the people or for the pocketbook of the manufacturer only. Very frequently you will find it for the protection of the pocketbook of the manufacturer and the dividends of the stockholders. There are many good and reliable coöperative physicians' supply houses, and pharmaceutical manufacturers, but regrettably some such houses have come into existence as a result of the activities of promoters conceived in a Wallingford's mind and born to line with gold the pockets of a Ponzi. It is unfortunate that some physicians buy stock in such pharmaceutical establishments or physicians' supply houses. It makes a physician a party to the scheme and he is inclined to buy the products of this profit-sharing concern to the exclusion of all others. Since price and profit are the two uppermost thoughts in the minds of these particular manufacturers, they are, of course, reluctant to hire chemists to control their raw ingredients or the finished products.

The matter of factory sanitation to include sterility of products should be covered by law and by enforcement. To my mind this is of great importance. Tomato products are considered unfit for food when they contain more than 100,000,000 bacteria per cubic centimeter, and milk when it contains a much smaller number, to mention only two products; yet I have seen drug preparations on the market containing ten times that many bacteria, which preparations were to be



purpose, more than pure technique or a method of activity. It demands rather a technical background, a systematic knowledge of scientific facts, an array of data selected from the laboratory of experience. (It requires above all, of course, on the part of the persons delegated to carry out its duties, an unusual equipment of tact, good judgment, common sense, and a sense of proportion. A consideration of these more personal attributes is deferred to a later section of this paper.) Has present-day sanitary inspection this technical background, this scientific basis? To answer this question, we must analyze carefully the content of the technology of sanitary inspection. For such a purpose, we may subdivide our activities into two fields, one concerned with extra-mural and the other with intra-mural sanitation. In the first case, we are concerned with the problems of the outdoors, in the second with the indoors. Whether these locations have reference to house, school, canning house, construction camp, mining shack, or hospital is of little import, since the primary technical facts in each instance are the same. The sanitation of the environs of the school, in so far as the elements of design or construction are concerned, is the same as that of the mining shack. An evil-smelling privy is the same whether it stands in front of a hospital or in back of an Italian's shanty. The scientific knowledge which will cause a transformation in the one, will result also in a modification of the other. Likewise, the technical facts which we use in the solution of the problems within the house, apply with equal force to those within the school or hospital. Changes in detail there may be, but fundamental data as to material sanitary problems are not dependent upon kind of property, but upon nature of problem. Therefore, in succeeding discussions, where reference is made, for example, to ventilation, to sewage disposal, to plumbing, the conceptions and the problems should be thought of in

general terms, rather than in specific application to school house or to construction camp.

To sanitary inspectors, the sanitary privy is at the same time a bane and a delight. Without it, he is jobless and with it he is nervous. The sanitary inspector hence appears as a new Diogenes in search of an honest privy. His utopia would be that spot upon which rests the "practical sanitary" privy. Dr. Stiles has recently drawn up general specifications for such an inspector's delight.<sup>1</sup> They are excellent enough to repeat at this time.

"From the standpoint of the average person involved, the word 'practical' means that (1) the original installation must cost little or nothing; (2) the privy must require no upkeep; (3) it must require no cleaning; (4) it must be without undue odor; and (5) it must be 'fool proof.'

"From the viewpoint of the health officer, a privy to be practical must be one: (1) which he can induce landlords to install; (2) which must be in keeping with the pocketbook of the poor; (3) which must not inhibit subsequent adoption of a sewer system; (4) which must be within his budget to administer; (5) which must not make too many enemies in the population; (6) which must not raise too much political antagonism; (7) which must last as long as required; and (8) for which he can obtain labor if it requires scavenging."

Is there such a privy in existence? Will there ever be? And, lastly, do we need one? In examining Dr. Stiles' specifications, and they represent those of most of us, we may distinguish two requirements, one of which is concerned with design, construction, and operation and the other, and more important one, with people and their mental attitude. The first only is our present concern, the second will be discussed later. It is believed we are safe in assuming that the elements of privy design, construction and maintenance, are at least theor-

lishments was worked out, with the idea that it might prove feasible to grant certificates of cleanliness to high-score places and thus induce the proprietors of low-score places to improve conditions through fear of loss of patronage.

Unfortunately the pressure of unexpected and more important work prevented follow-up work along these lines during the summer of 1921, but we have been assured by bathing-beach patrons that our preliminary work has resulted in a distinct improvement in a number of cases.

It may be of interest to those having similar problems to record at this time our method of scoring establishments of this kind and to illustrate that method by the detailed scores of the Rhode Island bath-houses as we found them in the summer of 1920.

#### METHOD OF SCORING.

In working out a score-card for this class of establishment, the various items to be considered may be grouped under two main headings: general sanitation and cleanliness, and possibility of transmission of disease.

The public who patronize and support these places are certainly entitled to the former, and they should also be protected from the latter. In evaluating these two groups we have considered the prevention of disease as the more important consideration and have given it somewhat greater weight.

Under the heading of general sanitation we have included construction, lighting and ventilation of buildings, furniture of dressing-rooms, towels, shower-baths, drinking water supply, and general cleanliness.

The type of construction of the building is important. Floors and walls should be of such type that they can readily be cleaned and kept free from vermin. This applies also to the equipment of the dressing-rooms. Lighting should be adequate in order that dirt or vermin may be readily detected. Good ventilation is essen-

tial in buildings which by the nature of their use are naturally damp.

Proper toilet facilities should be provided for both men and women. Where a bath-house is located in close proximity to a public comfort station, as is the case in some instances, toilets in the bath-house may sometimes be omitted. In such cases, due consideration should be given to the construction and cleanliness of the public toilet which serves as a substitute. Shower-baths, or other facilities for personal cleanliness of patrons, should also be included in the equipment of the establishment. Since salt-water bathing incites thirst in many people, a well-equipped bath-house should have clean, safe drinking water facilities for its patrons. The general cleanliness and care of the building and equipment should be given due weight in rating establishments of this kind.

The most important considerations in the prevention of transmission of disease are the methods employed for the washing, drying, and storage of bathing-suits and towels which are rented to patrons, or which are owned by patrons and cared for by the management. There is little question that many skin diseases have been transmitted in the past through the medium of improperly cleansed bathing-suits or towels. It is needless to say that no person suffering from a visible skin infection should be permitted to use a public bath-house, and the degree of supervision to prevent such use should be included in this part of the scoring system. The practice of many of these establishments of providing common drinking cups, towels, hairbrushes, combs, or similar toilet articles cannot be too strongly condemned and should be penalized in any system of scoring.

Our method of working out the evaluation of the various points in the score-card was somewhat as follows: A tabulation of the various points in each of the above groups was first made and a preliminary weighting given to each point. This score-card was then submitted to a

etically definitely known. It is possible to design a privy anywhere, which under reasonable conditions will give satisfactory service. It is true there are such places as China where the technology of individual sewage disposal is but little understood, because of peculiar economic and racial conditions. But for general American problems of rural sewage disposal, a technical solution of fair character exists. It is well to emphasize this point in order to clear the path for what is to be said later. The fact that it is often difficult if not impossible to obtain satisfaction from existing types of privies should be ascribed, it is believed, not to fallacies of science, to failures of design, but to more dangerous failures, those failures to familiarize human minds with structural panaceas.

It seems hardly necessary to enumerate a series of types of sanitary privies in order to illustrate the technical advance in their design. The outstanding feature of many symposiums on sanitary privies, where privy design is shuttled back and forth, appears to me to confirm the diagnosis given above, that the problems of sanitary inspection are after all not those of materials, but of men. It should not be understood, of course, that the theme of this discussion rests upon the hypothesis that the technology of sanitary inspection is complete. It is not and probably never will be. But the health officer surely has available already a mass of facts, of figures, of theories to guide him in the technical performance of his duty, where this is concerned only with the class of nuisance. The knowledge of what to do technically in this field seems to have gone far ahead of the knowing how to do psychologically.

This feeling has its source in the observation of the narrow clinging to simple technical solutions at the expense of broader viewpoints and may be illustrated by reference to a particular problem. The literature and discussion of

privy installations have always placed considerable emphasis, particularly in the South, upon the constructions of large numbers. Even in communities of 5,000 people or more, intensive privy campaigns still hold sway. A natural question often arises as to why such enormous makeshifts are still employed. Is it not often extravagant and foolish to install 2,000 privies in a community where a complete sewerage system would be cheaper, saner, and cleaner? In many instances, it is not realized that the total annual cost to individual homes for decent scavenging and construction and maintenance of privies is as great or greater than that due to the installation of a modern sewerage system. Some actual figures may demonstrate this fact more clearly. The following annual costs for scavenging were obtained from some of the smaller communities in Maryland. They are:

Brentwood	\$ 3.00 to \$12.00
Capitol Heights	4.00
Cottage City	6.00 to 12.00
Garrett Park	12.00
Kensington	6.00

These costs represent examples of night soil collection and disposal per house for can type, surface type, and cesspool installation.<sup>2</sup>

Contrast with these figures, the situation in these same communities after they have been combined into one district,<sup>2</sup> when the gross annual cost to a householder, with a fifty foot lot, a \$4,000 house, for 40,000 gallons of water service and the collection and disposal of all sewage, with a complete water and sewerage system, varies from only \$15 to \$20 per year. And this cost appears in a sparsely built suburban territory, where conditions are least favorable to low costs of water and sewer service. It would be interesting to learn whether in such extensive privy campaigns as here referred to any thought has been given to preliminary cost estimates of privies against sewerage system, where first costs, replacements, and general operation are

## CARE OF BATHING SUITS.

Washing by hand, cold water—2,	
warm water—4. Laundry wash-	
ing machine cold water—4, boil-	
ing water—9. Soap or effective	
disinfectants used, add 3. Dry-	
ing hot dryer laundry type—8,	
hot rooms—5. Open air drying	
—3. Extractor, centrifugal	
laundry type used—3. Storage,	
clean dry place, free from dust	
—2 .....	25

## CARE OF TOWELS.

Evaluation of points identical with	
care of bathing suits.....	25
TOTAL POINTS .....	100

SANITARY CONDITION OF TWENTY-FOUR  
RHODE ISLAND BATH-HOUSES

Nearly all of the buildings used as bath-houses at public bathing beaches in Rhode Island are low wooden structures cut up into small dressing-rooms. In the majority of cases, the parts of the buildings used for dressing-room purposes are arranged in alleys with dressing-rooms on each side, each dressing-room having a small window. For purposes of ventilation a considerable opening is often left between the side walls and the roof. The dressing-rooms are usually open at the top, and openings are usually left under the partitions in order to permit the floor, etc., to be flushed off with the hose. Each dressing-room is usually furnished with a bench, a chair, and a mirror.

In some establishments foot tubs or pails in which the patrons may wash sand and dirt from their feet, are provided in each dressing room. The use of these foot tubs is objectionable. In fact, one or two bath-house managers have stated to us that they had considerable trouble with children creating a nuisance in such pails or tubs. The better equipped bath-houses have fresh water showers in each alley for the use of patrons, and this may be considered the best practice. It might also be good practice to have a foot bath

with running water so arranged that all bathers entering the bath-house from the beach would have to walk through it. This would prevent sand and dirt from being tracked into the alleys and dressing-rooms, and would eliminate the necessity for the foot tubs. Such an arrangement, however, was not found at any of the Rhode Island establishments.

Through lack of proper sewer facilities, toilets at a number of bath-houses were of the privy type and in some cases were found to be in a very unclean condition. At two bath-houses, G. and Q., the condition of the toilets was so bad that extra points were deducted from the score.

In a few cases the management was using a disinfectant or vermifuge regularly in order to reduce possibility of vermin transmission to a minimum. Proper allowance was made for the probable effectiveness of the disinfectant used and the method and frequency of its application in scoring points for these houses.

In seven of the twenty-four houses, brushes, combs, and common drinking cups were provided and in six other houses, combs or hairbrushes, or both, were found. In all cases where such articles were found, the danger of the uncleanliness of such practice was called to the attention of the management. In a considerable number of cases it was stated that while the patrons asked for such articles, their maintenance was more or less of a nuisance and the managers would only be too glad to discontinue them if the State Board of Health would take the responsibility of ordering them out.

From a public-health viewpoint the care of suits and towels is probably the most important consideration when dealing with establishments of this kind.

The method of laundering suits at the different places varied from mere rinsing with cold water and drying in the open air, to washing in laundry washers

taken into account. In many instances, such comparisons do not seem to have been made.

By way of digression, it is of interest also to call attention to the rarity of the idea of combining a number of communities for sanitary purposes. Here, too, local technical solutions again overshadow the more important comprehensive improvements which the formation of sanitary districts call forth. For those health officers from territories, where it is believed the Sanitary District idea has not yet made much progress, the desirability of consolidation of towns for health purposes cannot be too greatly emphasized. Such combinations mean savings in cost and in lives. Their simplicity of development may be illustrated by sketching a district, which just now is in the very early stages of initiation, but whose proposed organization is founded upon one already in existence.<sup>2</sup> It has not yet progressed beyond the point of technical study. This particular example indicates the wisdom of considering neighboring communities from a broader standpoint than that presented by town limits.

In the Georges Creek Valley in the western part of Allegany County of Maryland, there are to be found about fifteen communities stretched along the Georges Creek for a distance of approximately 20 miles. These communities vary in size from several hundred to 7,000 persons. From one end of the valley to the other there lives a population of about 30,000. No single one of these communities has sufficient funds to provide itself with adequate water supply and sewerage facilities. The installation of sanitary privies and makeshift water supplies in these individual communities does not offer an economical or satisfactory sanitary solution to the problem. For this reason, it is the intention of the Maryland State Department of Health to initiate the formation of a Sanitary District to embrace all of the above communities. Such a consolidation of com-

munities has already been successfully accomplished in the Washington Suburban Sanitary District, previously mentioned in this paper.

Where such combinations of projects are possible, and they are frequently apparent in places where each town is struggling by itself to install and maintain a privy system, the financial burden upon individual property holders is materially reduced. By proper distribution of cost, the sanitary improvements brought about by district methods result in much less expense than the average householder uses annually for minor amusements. By properly allocating costs through an equitable system of payments, which need not be gone into here, the opposition in a series of communities to supposedly enormous expenditures of several millions of dollars for water supply and sewage systems often disappears. Such comprehensive schemes as outlined above may often be substituted for disconnected and isolated community privy treatment.

In the case of intra-mural or indoor public health technology, the development of standards has not been so complete as in the outdoor science. The elimination of objectionable conditions within the school, hospital or home is usually predicated upon empirical facts and ill-tested hypotheses. Even today the physiological bases for good, bad or indifferent ventilation are incomplete. This situation is reflected clearly in the difference of attitude exhibited by most health officers toward ventilation problems as contrasted with problems in the disposal of human excreta. Today the chemical theories of bad air still persist, for as late as 1918 a health officer made a lengthy report of moving picture ventilation in which carbon dioxide standards predominated. Although it is gradually being realized that ventilation is concerned with physics rather than chemistry, with air movement rather than air content, and is dependent upon cutaneous rather than physiological reactions, yet

cated by other parts of the score. The various points scored on this house were accordingly prorated in order to obtain a total which might be comparable with that of other houses.

The detailed scores for each of these houses is given in the accompanying table as an illustration of the part which each item in the score card has upon the total score.



## CHRISTMAS SEAL CAMPAIGN

Over 900,000,000 Christmas seals have been distributed by the National Tuberculosis Association in preparation for the Fourteenth Annual Christmas Seal Sale which begins on December 1st. In every state of the Union and even in far away

tions. Five per cent of the gross proceeds goes to support the National Association. The remaining 95 per cent remains in the state where the seals are sold. Of this remainder, part goes to support the state work, but the larger share of the money stays in those communities where tuberculosis work is organized and goes to support local tuberculosis associations. The Christmas seal is the link that binds into a coördinated whole the entire tuberculosis movement.

Since the first national seal sale was organized in 1908, over \$16,000,000 has been realized from this source. This money has been spent by the national, state and local associations largely in organization and education work. A relatively small percentage has gone for relief or institutional care. The net result of the organization and education of the last twelve years has been to increase the institutional provision for the care of the tuberculous, including hospitals, sanatoria, nurses, dispensaries and preventoria by several hundred per cent. Figured in dollars and cents, the investment of \$16,000,000 by the various tuberculosis associations in the United States has resulted in the establishment of tuberculosis agencies which at a most conservative valuation today are worth over \$125,000,000 and which are annually spending for maintenance at least \$30,000,000. Most of these institutions are operated by official agencies, federal, state, municipal or county.



Christmas Seal, 1921

Philippine Islands, an active campaign for the sale of seals has been organized. Last year the Christmas seal sale netted a total of \$3,650,000 to the National, state and local tuberculosis associations of the country. While those in charge of the campaign recognize the serious financial stringency existing all over the country, by redoubled efforts it is expected that the proceeds will equal those of last year and may possibly exceed them.

The Christmas Seal Sale supports practically the entire non-official tuberculosis work conducted by the various associa-

the complete understanding of these processes is so far removed that, in this case, the health officer must wait upon technical advance for the complete solution of his problems. Fortunately the absence of such complete solutions does not retard the development of sanitary activity, for a sufficiently large body of facts, though incomplete, are at hand for support.

In the same way, housing regulations as to standards of space and light leave something to be desired, in view of the fact that the effects upon the human organism are problematical. When we pass from these more complex problems of mental and physical reactions, to the more simple question, for example, of plumbing, a similar lack of basic facts appears. It is important to contrast the states of technology of indoor and outdoor environmental factors and to evaluate their effects. For it must be borne in mind that, in the case of the outdoor environment, the sanitary inspector's activity has been longer, in time, than with indoor conditions. The demand for an outdoor technology has been greater during a longer period. Hence its development has been more rapid and more complete than that of the indoors, where the effects of space, light and air conditions have only comparatively recently been emphasized from the standpoint of health. That this diagnosis of the inadequacy of current scientific data on indoor environment is probably correct will appear, for example, from a random examination of a series of housing regulations as to floor space and air content per person. It would be interesting to learn how the standard regulations, for example of temperature and humidity are determined upon by different states, municipalities or counties.

The above general and necessarily brief sketch, of the second phase of sanitary inspection, the technical, brings us to a third and most important division of the subject, namely:

**3. The Philosophy of Sanitary Inspection.**—As a particular field of sanitation develops, it is often of value to view its problems in retrospect in order to plan their solution for the future. In many discussions of sanitary inspection this failure to review and to plan, upon the basis of history, results in immeasurable loss to all concerned. The problems of sanitary inspection have much in common with those that have arisen in other fields. Their analysis should lead to a philosophy of action, just as the analysis of a problem of calculus leads to its solution. Let us attempt such an analytical study.

The problems which are under discussion have passed or are still passing through one of three stages. A primary stage of recognition, a secondary of technical development, and a tertiary of activity of application of the solutions developed in the second. Before sanitary inspection could exist, it was necessary for people to recognize that there were problems of excreta disposal, of bad water supply, and of malaria control. As long as the memory of man will go, the problems of sanitary inspection have been accepted. As our knowledge advances, the recognition of new problems of public health will advance. Following close upon the recognition of problems, there comes their technical solution. As the writer has already attempted to show, these technical solutions will be in process of study forever, but enough are already available for the advent of intensive application. It is apparent, therefore, that, although each of these three phases of sanitary inspection may, chronologically, merge into each other, yet we may safely conclude that today only the third phase, of application, is of prime importance to the practical health officer. The public at large has not yet reached completely the first phase, that of recognition. The research student is submerged in the second, the technical; while the health officer, the advance guard,

in the death-rate during recent years has reached a point considered absolutely unattainable a generation ago. During the 1890's, Dr. Samuel W. Abbott, secretary of the Massachusetts State Board of Health, and the majority of prominent sanitarians and statisticians assumed without question that a crude death-rate of 18 per 1,000 population was satisfactorily low, and that an average rate of less than 15 for the registration area was never to be expected. How far such assumptions have missed the mark of present-day levels is now universally known, and no contemporary scientific man would have the hardihood to make predictions of an increase in the reduction of American mortality within the near future.

Dr. Charles Asbury Stephens, in a recent book called *Immortal Life: How It Will Be Achieved*, has elaborated the thesis of Metchnikoff to the effect that an indefinite extension of life is possible by eliminating the causes of animal decay at their source—the cell—and perfecting a cell food which will maintain tissue in permanent vitality. It is obvious that this biological issue must lie at the bottom of any fundamental consideration of longevity, and that we are only beginning to scratch the surface of the question of the relation between heredity and the negative forces of old age and disease. As Dr. Welch wittily said, Dr. Smith perhaps owes his great age and vitality, more than to any other one factor, to his very careful choice of his ancestors. We can probably never expect any permanent or extensive prolongation of the span of life until society begins to make definite application of both positive and restrictive eugenics.

Entirely apart from the possibilities of cell vitalization or of eugenic progress, however, Stephens admits the necessity of success in extirpating pathogenic organisms if death-rates are to be largely reduced. Whether or not the present efforts of preventive medicine to identify the etiological agents of cancer, leprosy, and other diseases still largely in the category of "incurable," are successful, there remains a generous margin of "preventability" in the diseases which have been, to a degree, brought under control. The classic "Report on National Vitality," prepared by Irving Fisher for President Roosevelt's National Conservation in 1909, contains in brief compass the most comprehensive and informed discussion of morbidity, mortality, and longevity, and their interrelations that has yet been published. Although more recent figures could possibly be adduced, nowhere have these possibilities of prolonged life been set forth more vividly. Professor Fisher shows, in a table which should be at the elbow of every health officer, the expectation of life at the median age of persons dying from each cause of death, ratios of "preventability," or rather, "postponability" for the causes named, and percentages of deaths from each cause to the total of all deaths. The ratios are derived from averages of estimates by some eighteen prominent physicians, based on both statistical and clinical experience, and are conservatively calculated on the basis of a definition of preventability as that "fraction of all deaths which would be avoided if knowledge now existing among well-informed men in the medical profession were actually applied in a reasonable way and to a reasonable extent." From these factors he calculates the number of years which would be added to the



should enter the third stage to bring about the adoption of scientific methods for the elimination of disease.

Now that we have definitely located or oriented ourselves in our own microcosm of sanitation, let us proceed upon our task of formulating a philosophy, a future policy or basis of sanitary inspection. In the past we have been concerned with standards of design and construction. Our mental energies have been focused upon problems of materials, of things, of structures. At many times, in our haste to formulate new designs, to install more privies, to make more housing regulations have we not forgotten our real standards? How often do standards of design conceal the only standards worth while, those of accomplishment? And here it is well to recall that the velocity of sanitary privy construction does not always measure the amount of fruitful work accomplished. For construction and use, alas, are not synonymous. The literature of sanitary inspection is filled with excellent and valuable pages concerned with the privy, but how little do we see of the analysis of the people who are to use them! In the health officer's interminable search for the one best privy, does he often stop by the wayside to ponder upon the frailty of human nature? Most often he worries about the weakness of the E type in contrast with the A or the B. It is by no means a strange or startling statement to make at this time that after all the type of privy means little or nothing in the progress of sanitation. The human type is the important element and not the privy, or the manure pile, or the fly. These latter elements are environmental only. How useless it is to attempt to control these, when these in turn are controlled by man, who alone is not subjected to study, to analysis, to minute design and re-design, to modification after modification. Attention is showered upon the material, while the family remains an appendage, an incidental.

As long as the sanitary inspector views

man as a stubborn obstacle standing in the way of sanitary progress, rather than a living organism blindly groping for brilliant sunlight, just so long will real progress be slow, difficult and disheartening. Just so long as the engineer permits the slope of a sewer line to assume more importance in his calculations than the weaknesses and the instincts of human beings, that is how long our road will seem dark and dreary. For after all, are sewer lines and privies and plumbing codes our only concern?

Whether we believe in trade unions or open shop, in bolshevism or monarchy we must recognize their existence if we are to carry forward our work. The day is definitely passed when the only factors in sanitary inspection are legal and technical. To this category must now be added a new phase, the human side. The old science, to paraphrase Dr. Osler, must be linked with the new humanities. We have long recognized the primary elements of design, now we must begin to study just as closely the primary instincts of people. Our progress depends upon the recognition of the existence of factors other than those of the science of structures.

It has been a source of curiosity to the writer as to how often so-called privy campaigns are predicated on a study of the psychological, physiological, and economic conditions of a community. Are there any instances where the nature of peoples has predetermined the line of attack, rather than the existing standards of design? Does the sanitary inspector vary his privy design for Pole, Jew, Irish or Italian? Obviously the demands of these races are different, their reactions are varied, and their tempers innumerable. It is difficult to expect centuries of custom to give way to two weeks of Yankee privy campaign, no matter how well planned and conducted. If privy design is not varied, and human nature is untouched, why should failures surprise? We are rarely disconcerted if a single suit of clothes does not fit the stalwart

common American sealed bottle is almost unknown to the London public, and England lags fifty years behind New York in the care of this indispensable food for children, and of its containers.

Germany led the world in the establishment of mother-and-child health centers, but the fresh-air doctrine has never been added to German articles of faith. France, alarmed by a falling birth-rate, has worked hard to "save the babies," but not even in the poverty of war times would the French mother discard stuffy swaddling clothes for the looser, limb-freeing American layette. French bread is unquestionably better than American bread, but Americans by common consent prefer to buy their bread wrapped in oiled paper. The Parisian morning spectacle of maids going home with the unwrapped, yard-long loaf under their arms would distress the American housewife. Certainly the science of dentistry is far advanced in Europe, but it cannot be pretended that oral hygiene has made strides. Even the grande dames of fiction recall a visit to the dentist as an unusual event, not as a matter of semiannual habit. A "gold-stopped" tooth abroad is a patent of American citizenship and it is commonly believed by foreigners that Americans wear gold thus as a decoration, but the smile with which they announce this belief reveals the fact that not one foreign child in a thousand goes through the teeth-straightening, plate-wearing period so common among his American cousins. It is nowhere apparent in Europe that ability to masticate properly is recognized as an aid to health, and preservation of the teeth is set down as an American notion, off the same piece as the pride, inexplicable to a Teuton, that an American surgeon takes in finishing a surgical operation with the least possible permanent scar.

What Dr. Biggs has said is not to be taken as a criticism of European science. It was merely a comment on the failure of authorities and of the public to apply the discoveries of the laboratory to the every-day business of public health. Science for health has not been democratized abroad. She remains the cloistered nun of the laboratory, not the familiar friend and adviser of the man in the street as she is in America.



## BOOKS AND REPORTS REVIEWED

**Practical Tuberculosis.** *Herbert F. Gammons, M. D.* St. Louis: C. V. Mosby Co., 1921. Pp. 158. Price, \$2.00.

This book is the work of a man who has lived his medical life with tuberculosis in all its forms. His experience has brought him to see and know tuberculosis in the environments of New England, Minnesota and the great Southwest. He has arrived at very definite ideas regarding the handling of tuberculosis cases. From this full life he has put down his observations for the benefit of his readers, who he believes will be the general

practitioners who often against their wills, both at the beginning and at the end of the diseases, have to handle in their homes people with tuberculosis. These physicians will find, not always in logical order, what this man has seen and believes in regard to tuberculosis. This information will not be clouded by any attempt to square this belief with the work and theories of other men. In this way the book will be of value to the persons for whom the book is written, for it is very sane in its suggestions.—A. K. STONE, M. D.

Swede, the slim Italian, or the anaemic Jew.

When the lowly "polack" of steel town appears as human brother, or the coal miner as something else than a war-time plutocrat, when intolerance gives way to understanding, perhaps then some of the thousands of privies built will be used for something other than coal bins.

When this socialization of viewpoint appears, when society becomes more than a mere hunting ground for nuisances, then it is believed a newer and better philosophy of sanitary inspection will appear.

#### ADDENDA

1. Practical Types of Sanitary Privies, by C. W. Stiles, *The A. J. of PUBLIC HEALTH*, Vol. 10, No. 1, January, 1920.

2. The cost data here presented have been obtained from the "Report on the Advisability of Creating a Sanitary District in Maryland, Contiguous to the District of Columbia" to the General Assembly of Maryland by the Washington Suburban Sanitary Commission (Chief Engineer, Robert B. Morse), on January 21, 1918.

The Washington Suburban Sanitary District embraces the suburban areas in Montgomery and Prince George's Counties in Maryland,

contiguous to the District of Columbia. The District was incorporated by the State Legislature (Chapter 122 of the Acts of the Maryland Legislature of 1918) for the purpose of the establishment and operation of adequate water, sewerage and refuse disposal systems. This District has an area of 95 square miles and a population of nearly 50,000, which is rapidly increasing.

The administration of the District, with respect to the control of water supply, sewerage, and refuse disposal systems, is in the hands of a joint commission of three members. During the period from May 1, 1919, to April 30, 1920, approximately \$512,000 has been expended by the Commission for public improvements. The Commission has the power to issue its own bonds.

3. The following texts were freely drawn upon for the section dealing with the legal aspect of sanitary inspection. The authors of these texts are responsible for whatever is accurate in the discussion. If the exposition departs anywhere from truly legal principles, I alone have the burden to bear.

(a)—J. Scott MacNutt, *A Manual for Health Officers*. New York: J. Wiley & Sons.

(b)—H. B. Hemenway, *Legal Principles of Public Health Administration*. Chicago: T. H. Flood & Co.



**The Nurse in the Virgin Islands.**—The value of the Public Health Nurse is appreciated in newest America as is shown by an informative article on "Public Health Activities in the Virgin Islands," by Hannah M. Workman.

Here are islands lately acquired by the United States which during the Danish occupancy had hospitals but no trained nurses. The disposition to accept modern methods has long been present there and so, when the Americans assumed control, one of the first requests was for American nurses.

Since 1917 nine carefully chosen navy nurses have been at work under supervision of American Naval Medical men in the Virgin Islands. In addition to these nurses, there have been comparatively recent appointments of Red Cross workers. How

eager the people are for the latest developments in public health work has been shown, though this is not mentioned in the article, by the visit of one of the nurses at the headquarters of the Mothercraft movement in Massachusetts to secure material and literature for teaching girls and young women the proper care of babies.

This progressiveness in studying advanced methods in the United States is illustrated in the islands, by the admirable hospitals and classes for training nurses; by the infant welfare department; by the public health nurses and the general sanitation and cleanliness which are remarkable for a tropical country.—Hannah M. Workman, *Public Health Nurse*, April, 1921. (*M. B. D.*)

## 2. MODEL LAWS

*Births and Deaths:* The Model State Law for the Registration of Births and Deaths.—Supplement No. 12, United States Public Health Service, Washington, D. C.

*Children:* Report of the Committee on Health Provisions for State Laws Relating to Children.—National Child Health Council, Washington, D. C.

*Health:* Model Health Code.—American Public Health Association, 370 Seventh Avenue, New York, N. Y. 15 cents.

*Housing:* Model Housing Law.—Russell Sage Foundation, 130 East Twenty-second Street, New York, N. Y. \$4.

*Milk:* Guide for Formulating a Milk Ordinance.—Bulletin No. 585, United States Department of Agriculture, Washington, D. C.

*Morbidity:* The Model State Law for Morbidity Reports.—Reprint No. 285 from the Public Health Reports, United States Public Health Service, Washington, D. C.

*Mosquitoes:* Model Mosquito Ordinance.—Reprint No. 563 from the Public Health Reports, United States Public Health Service, Washington, D. C.

*Saving Sight:* Model Legislation for Saving Sight (an outline).—National Committee for the Prevention of Blindness, 130 East Twenty-second Street, New York, N. Y. Also in Cleveland Hospital and Health Survey, Part 2, page 195. Cleveland Hospital Council, 308 Anisfield Building, Cleveland, O. 50 cents.

*Veneral Diseases:* Compilation of Suggested and Adjudicated Ordinances Which Have Proved Successful in Combating Veneral Diseases.—V. D. Bulletin No. 39, United States Public Health Service, Washington, D. C.

## 3. MUNICIPAL LAWS

A complete list of pamphlets containing municipal laws of individual cities will not be given. Most of the larger cities have compiled their health laws in one volume. Other material is as follows:

Municipal ordinances, rules, and regulations pertaining to public hygiene of cities of the United States, published by the United States Public Health Service, Washington, D. C., as follows:

January 1, 1910-June 30, 1911—Reprint No. 70.

July 1-December 31, 1911—Reprint No. 121.

1912—Reprint No. 199.

1913—Reprint No. 230.

1914—Reprint No. 273.

1915—Reprint No. 364.

1916—Reprint No. 388.

1917-1919—Supplement No. 40.

Smoke Abatement and City Smoke Ordinances.—Bulletin No. 49, United States Bureau of Mines, Washington, D. C.

Suggested Ordinance for Cities.—Compiled by Institute of Makers of Explosives, New York, N. Y.

(See also under Model Laws.)

## 4. PUBLIC HEALTH (GENERAL)

*Common Drinking Cups and Roller Towels:* An Analysis of the Laws and Regulations Relating Thereto in Force in the United States (1912).—Public Health Bulletin No. 57, Government Printing Office, Washington, D. C. 5 cents.

*Communicable Diseases:* An Analysis of the Laws and Regulation for the Control Thereof in Force in the United States (1913).—Public Health Bulletin No. 62, Government Printing Office, Washington, D. C. 50 cents.

*Court Decisions:* Court Decisions Pertaining to Public Health (Previous to 1916).—Reprint No. 342, United States Public Health Service, Washington, D. C.

Court Decisions Pertaining to Public Health (1916).—Reprint No. 410, United States Public Health Service, Washington, D. C.

Court Decisions Relating to Morbidity Reports (1915).—Reprint No. 205, from Public Health Reports, Government Printing Office, Washington, D. C. 5 cents.

*Drugs:* Digest of Laws and Regulations Relating to Habit-Forming Drugs.—1912, Public Health Bulletin 56; 1912 and 1913, Reprint No. 146; 1913 and 1914, Reprint No. 240; 1915, Reprint No. 267; 1916, Reprint No. 321. All from the United States Public Health Service, Washington, D. C.

*Food and Drugs Act:* Rules and Regulations for Enforcement of the Food and Drugs Act (1913).—Agriculture Circular No. 21, United States Department of Agriculture, Washington, D. C.

*Food and Food Control Laws:* 1905, Chemistry Bulletin No. 69; 1906, Chemistry Bulletin No. 104; 1907, Chemistry Bulletin No. 112; 1908, Chemistry Bulletin No. 121. All

# WHAT HEALTH OFFICERS CAN DO TO PROMOTE RAT EXTERMINATION

EDWARD A. GOLDMAN,

*In Charge, Biological Investigations,  
Bureau of Biological Survey, U. S. Department of Agriculture,  
Washington, D. C.*

Rats are a civic reproach and a sanitary menace of the first magnitude, not merely an unavoidable economic burden. Health officers everywhere must be active because civilization demands the coöperation of all forces in the removal of the rat menace to health and well-being. This paper outlines well-digested plans for efficient warfare on the rat.

WHILE the rôle of rats as carriers of disease is only partly determined, sufficient is known to mark these animals everywhere as perhaps the greatest single menace to the health of the human race. From their original Old World habitats they have accompanied man in his migrations, and have infested his habitations or their vicinity in spite of measures taken against them from time to time, until they now are firmly entrenched as human parasites, and they maintain this repugnant relation with a tenacity truly remarkable.

## ENDEMIC PLAGUE AN AMERICAN MENACE

The best-known rat-transmitted disease, bubonic plague, has caused the deaths of millions of people since the beginning of the Christian era. This disease carried from endemic centers in the Old World manifests itself by periodic and alarming outbreaks, and evidences a tendency to form endemic centers of contagion even in America. Bubonic plague is ordinarily transmitted by fleas which have become infected from rats.

Aside from bubonic plague, rats are known to be involved in the transmission of trichinosis, infectious jaundice, and rat-bite fever, and owing to their filthy habits they are potential agents in the

distribution of many other diseases, their exact relation to which remains an important field for laboratory investigation. Infectious jaundice is probably due mainly to rat contamination of food, except possibly in certain Asiatic countries where some recent evidence suggests that poorly-shod natives, especially in coal mines, also receive the spirochetal infection directly through the skin. This disease has been generally associated with armies holding rat-infested trenches along stabilized war-fronts, hence the name "trench jaundice," also commonly applied to it.

Bubonic plague, or a plague-like disease, has been communicated probably through use of the same burrows to ground squirrels (*Citellus beecheyi*) and wood rats (*Neotoma fuscipes*) in California, and the infection is reported\* to have been detected in a rice rat (*Oryzomys palustris*) at New Orleans. The ground squirrels and wood rats are widely distributed, especially in the western United States, and the rice rats occupy parts of the Mississippi Valley and much of the Atlantic seaboard from Texas to New Jersey. It should be borne in mind that the house rat, along

\*Williams, C. L., Amer. Jour. Public Health, vol. 10, No. 11, p. 803, November, 1920.

*Maine:* Abstract of the Health Laws (1919); Rules and Regulations in Relation to Plumbing Work (1920).

*Maryland:* The Laws of Maryland Relating to Public Health (1915).

*Massachusetts:* Laws relative to Prevention of Disease (1915); Laws Relative to Nuisances, Sources of Filth, and Causes of Sickness (in General) (1915); Laws Relating to Milk and Milk Products (1919); Special Laws Relating to Foods and Drugs (1919); Manual of Health Laws (1915).

*Michigan:* Laws Relating to Public Health (1917, 1919).

*Minnesota:* State Health Laws and Regulations (1919).

*Mississippi:* Rules and Regulations Governing Infectious Diseases and Sanitation (1918); Vital Statistics Law (1912).

*Missouri:* Health Officers' Manual (1918); Laws Governing Registration of Deaths and Births.

*Montana:* Public Health Laws and Regulations (1915); Hotel Law, Rules and Regulations (1919); Food and Drug Laws, Rules and Regulations (1919).

*Nebraska:* Rules and Regulations (1919).

*Nevada:* Health Laws (1919); Rules and Regulations Governing the Reporting of Certain Diseases and Management of Quarantine (1920).

*New Hampshire:* The Principal Public Health Laws (1915); Abstract of Laws and Regulations Relating to the Sale of Foods and Medicines (1919).

*New Jersey:* Public Health Laws (1918); Reprints on specific regulations; The Sanitary Code (1917).

*New Mexico:* The Public Health Law (1919); Reprints of various regulations.

*New York:* Public Health Manual (1919); Compilation of Laws, Regulations and Agencies Relating to Tuberculosis (1918); Model Health Regulations for Communities.

*North Carolina:* Reprints on specific regulations; Compilation of Public Health Laws (1917); Social Laws and Agencies, American Red Cross Handbook, Southern Division, Atlanta, Ga.

*Ohio:* Laws Relating to Occupational Diseases and Industrial Hygiene (1913); Public Health Manual (1920).

*Oklahoma:* Laws, Rules and Regulations

Governing Sanitation (1919); Food and Drug Law (1911).

*Oregon:* Health Laws (1919).

*Pennsylvania:* Synopsis of Health Laws (1920).

*Rhode Island:* Rules Governing Control of Contagious Diseases (1919).

*South Carolina:* Sanitary Code (1919).

*South Dakota:* Laws Relative to Public Health and Safety (1919).

*Texas:* Vital Statistics Manual.

*Vermont:* General Laws Relating to the State Board of Health (1918).

*Virginia:* Reprints of various laws and regulations.

*Washington:* Rules and Regulations and Statutes (1917); Rules Relating to Reporting of Venereal Diseases (1919).

*West Virginia:* Health Laws (1919).

*Wisconsin:* Rules and Extracts from Laws Pertaining to the Prevention and Control of Communicable Diseases (1919); Powers and Duties of Boards of Health (1918).

*Wyoming:* Synopsis of Laws (1919).

Other references to State laws:

State Laws and Regulations Pertaining to Public Health, published by the United States Public Health Service, Washington, D. C., as follows:

July 1, 1911-December 31, 1912—Reprint No. 200.

1913—Reprint No. 264.

1914—Reprint No. 279.

1915—Reprint No. 338.

1916—Reprint No. 406.

1917—Supplement No. 37.

1918—Supplement No. 38.

*Dependent Classes:* Summary of State Laws Relative to the Care of the Dependent Classes (1913).—United States Bureau of the Census, Washington, D. C. 60 cents.

*Explosives:* Suggested State Law Compiled by Institute of Makers of Explosives, New York, N. Y.

*Hospitals:* State Laws Authorizing County and City Hospitals.—Journal of the American Medical Association, Chicago, April 9, 1921, p. 1034.

*Insane:* Summaries of State Laws Relating to the Insane (1917).—National Committee for Mental Hygiene, 370 Seventh Avenue, New York, N. Y.

*Physical Education:* Recent State Legisla-

with the wood rat, the rice rat, and various other indigenous American forms, belongs to the murine family, and if plague among these animals is allowed to progress unchecked it may also reach our woodchucks (*Marmota*), which with our numerous ground squirrels are closely allied to Asiatic rodents believed to be natural enzoötic hosts.

Under ordinary conditions rats tend to keep pace in numbers with the increase and congestion of the human population, an aggravating modern factor. Unless house rats are controlled the probability of the establishment in America of plague centers very difficult to eradicate and from which epizootic outbreaks would lead to wide-spread human mortality seems reasonably certain.

#### LIFE HABITS OF RATS

Some knowledge of the life habits and practical methods to be employed in the control of rats is essential and should be acquired by every health officer. In fact instruction in this branch might well form a part of the curriculum of every public school, until rats are no longer commonly regarded as an unavoidable evil.

Two species of rat, somewhat different in habits and both potential carriers of bubonic plague and other diseases, are to be dealt with. These are the brown rat (*Rattus norvegicus*) and the black rat (*Rattus rattus rattus*), of which the so-called "roof rat" (*Rattus rattus alexandrinus*) is merely a variety. The brown rat, usually the more important of the two in America, is, excepting in certain individuals in a peculiar black color phase, readily distinguished from its congeners by general brownish color of back, in combination with larger size, more robust form, smaller ears, and relatively or actually shorter tail. In adult brown rats the hind foot usually measures over 40 mm., and the tail is shorter than the head and body together, while in the black species the reverse is true. The brown rat is largely a burrowing animal

and lives mainly near the ground, especially in the vicinity of water, where its holes and well-beaten paths are often much in evidence; the black species, a more expert climber, is more apt to inhabit the roofs or upper floors of buildings, and is usually the more abundant of the two aboard ships. Where food supplies cannot be isolated the importance of killing the early arriving individuals by any possible means will become more evident when it is remembered that the period of gestation is only three weeks, and that a female brown rat three months old is likely to bear and may be expected to produce 6 to 10 young at a birth under ordinary climatic conditions. Litters, however, commonly contain more than ten. Rats probably produce ordinarily from three to five litters in a year, but where food and shelter are abundant the number of litters is increased.

Computations based on the assumption that rats breed only three times in a

FIGURE 1



One of thousands of well-defined rat paths leading from garbage dump into grain fields. By the number of such paths and holes with which they connect, the health officer may estimate the degree of infestation.

# EMPLOYMENT BUREAU

## HELP WANTED

Help wanted announcements will be carried free in this column until further notice. Copy goes to the printer on the 5th of each month for publication on the 20th. Mail to New York office as early as possible.

In answering keyed advertisements, please mail replies separately to editorial office in New York City. In replying give age, professional training, salary requirements, previous positions held and three or more references.

**Wanted:** Immediately, bacteriologist for city of 60,000 population. Salary \$1,500. Address Chairman, Board of Health, New Britain, Conn.

**Wanted:** Full-time assistant health officer to act as city and county physician. Population of city and county 42,000. Salary \$2,400 and transportation. Applicant should outline his personal and professional qualifications. Apply Dr. John H. Hamilton, Health Officer, Wilmington, N. C.

**Wanted:** Laboratory director at the Johnson City National Sanatorium. Salary \$2,600 and furnished quarters, light and heat. Address Medical Director, National Sanatorium, Johnson City, Tenn.

**Wanted:** Graduate nurse to introduce and conduct courses in home nursing, and to supervise nursing activities in a secondary school in a large city in the Middle West. College trained woman preferred. An excellent opportunity for one with initiative. Address 472, care this JOURNAL, New York address.

## POSITIONS WANTED

Positions wanted announcements will henceforth be carried in this column. The charge is \$2 per insertion. Copy should be received at this office by the 10th of the month.

**Wanted:** Qualified sanitarian, recent graduate of Harvard-Technology School of Public Health, wants position. Experience

in public-health work prior to taking C. P. H. degree. District health officer, northern Maine district, one year. Division director, Maine State Department of Health, two years, preceded by nineteen years general medical and surgical practice, including four years city dispensary service, four years medical inspector of schools and six years neurologist to Central Maine General Hospital. Best of references furnished. Now open to engagement. Address 192, H. E. H., care this JOURNAL, New York address.

**Wanted:** Position as full-time health officer or epidemiologist by a physician who holds D. P. H. and other college degrees, has had much experience in the government, state and municipal service. Best of references. Salary secondary to good working conditions. Address W. M., 192, care this JOURNAL, New York address.

**Wanted:** Position by a competent bacteriologist in commercial, state, or city laboratory. Have had extensive experience in bacteriological and chemical laboratories. Will be available first of December and go anywhere. Prefer a permanent place with moderate salary. Married. If you need an honest, conscientious man who tries to produce class-A work and can furnish best of references, write or wire M. S. Tarpinian, Port Arthur, Texas.

**Wanted:** Experienced bacteriologist and laboratory technician desires position on Pacific Coast. Thoroughly skilled in physiological chemistry, Wassermann's, serological and all routine laboratory work. Prefer work in hospital, or with association of physicians. References. Address 194, S. M. C., care this JOURNAL, New York address.

**Wanted:** Situation in Central West. State health department work preferred. Broad experience in administrative, medical and health work. Address 195, care this JOURNAL, New York address.



year, with average litters of 8, divided equally by sexes, with no deaths, reach the astounding total increase for a single pair and their progeny in three years to over 3,900,000 individuals. The mortality rate is obviously high or rats would soon literally overrun the earth.

#### RAT PREVENTION

All efforts to control or exterminate rats should be aimed at one or both of the two vital elements, food and shelter. Eliminate either of these completely and the problem is solved. Reduce either of these elements materially and a corresponding diminution of the rat population normally results. Rats are omnivorous and are soon attracted to any accessible food supplies, and if shelter is also available they very quickly build up large colonies.

Much has been written on modern rat-proofing methods, and these cannot be too strongly stressed, but only the general principles involved need be stated here. Traps, poisons, and other effective agents in rat destruction will be of little permanent value in most localities unless food warehouses are so constructed as to bar the entrance of these animals, and food supplies made inaccessible everywhere. Rats kill young chickens, and for this reason and to eliminate shelter for them, poultry houses, barns, and all out-buildings should be carefully closed to them. No garbage or trash piles should be allowed to accumulate in the vicinity of stores, markets, or human habitations, and loose material should be kept cleared away as far as possible. The rat-proofing of structures should precede or at least accompany all rat-killing campaigns.

In one of our great army depots in France millions of dollars' worth of supplies attractive to rats were stored in temporary structures, where under stress of war conditions rat-proofing was out of the question; but from the beginning the policy was adopted of keeping the ground as clear as possible in and about

the buildings and of turning over at intervals the great stacks of food supplies. This depot was located in the interior of the country with no heavily infested area near, but the district was well settled and rats in usual numbers were living about neighboring farms. A few, as might be expected, entered the depot of their own accord, and others were carried in with freight shipments from the base ports and in cars returned from the front. Although food supplies were easily accessible, the number of rats gaining a foothold in the depot was almost negligible. The importance of eliminating rat-harborage was strikingly demonstrated.

#### EFFICIENCY ESSENTIAL IN RAT CONTROL

The vital importance of eradicating rats being obvious from the sanitary as well as from the economic viewpoint, the practical problem is how to deal with the pest most effectively. All health officers, Federal, State, or municipal, should devote especial attention to rats, and be prepared to deal in the most efficient manner with the varying conditions encountered.

As a preliminary measure rats should be prevented from landing at the ports. All vessels should be fended off at least 6 feet from docks; all shore lines should carry metal discs 4 feet in diameter, to block the passage of rats; gangways should be raised; and other shore connections severed as far as possible at night. In addition all ships and cargo should be thoroughly treated as often as practicable with hydrocyanic acid gas or some other effective fumigant. In spite of all precautions, however, some rat stowaways are sure to find their way ashore, but by eliminating food and shelter, conditions should be made as uncongenial for them as possible.

The methods to be adopted in each locality or rat-infested center should be based on local examinations, as a physician diagnoses cases, and the remedy prescribed in accordance with conditions prevailing. Rat warfare is costly and

never be many awards of this nature and it cannot be maintained that the precedent is unwise." (Applause).—(J. A. T.)

✦

**The Dental Hygienist.**—As the interest in oral hygiene progresses and the number of dental hygienists increase, there is a growing difference of opinion in regard to the work and training of a dental hygienist. Some advocate: (1) nothing but cleaning and teaching oral hygiene; (2) cleaning and assisting in dentistry and oral surgery; (3) nothing but teaching general and dental hygiene and nutrition.

The title may be influenced by the type of work to be done, "dental hygienist" signifying oral prophylactic work or instruction exclusively in dental hygiene, "dental nurse" signifying dental assistance similar to that given by medical or surgical nurse, or work comparable to that of a public-health nurse. One working exclusively in dental and general hygiene and nutrition could well be called a "dental social service worker."

The order of the importance of the dental hygienist's work appears to be as follows: (1) in public clinics and institutions; (2) in private offices; while the type of work in each may be classified as (a) oral prophylaxis; (b) oral health instruction; (c) assisting in dental practice.

The Forsyth Dental Infirmary in its Training School has held to the broad view of giving general training and experience in all phases of work which might be done by the dental hygienist. Thus far this has been a source of satisfaction inasmuch as its graduates are fitted to do anything or everything which might be considered the work of a dental hygienist. This appears to be a conservative plan until such a time as there is a more unanimous opinion as to what should be her particular field. But whatever is done, to accomplish the most and in the most logical way the dental hygienist will follow the dental profession, and whatever it stands for in ten or twenty-five years will determine the type of work of the dental hygienist of that day.—Dr. H. DeW. Cross in the *Dental Hygiene News Letter*, (California), Aug., 1921.—(J. A. T.)

✦

**Nutritional Value of Soft Drinks.**—The four classes of soft drinks are:

1. Those compounded from artificial flavors and coloring matter, and artificially sweetened.

2. Those compounded as above, and sweetened with sucrose.

3. Drinks compounded from fruit juices or syrup, with or without the addition of sucrose.

4. Drinks compounded from syrup containing stimulants such as caffeine.

The drinks of class one are now practically eliminated. The examination of a large number of bottled drinks in the second class indicated that the sugar contained in the individual bottles varied from five tenths to nine tenths of an ounce, and their food value lies mainly in this added sugar. In addition to the sugar, the drink often contains acids, chiefly citric, having a certain therapeutic and hygienic value. Drinks in class three are by far the most valuable of all from the nutritional standpoint, because in addition to the calories furnished by the added sugar, they contain no inconsiderable amount of fruit juices. The chief beverage in the fourth class is Coca Cola, the basis of which is a syrup consisting of about one half sugar, one third water, with less than one per cent of phosphoric acid, and the caffeine contained being from 0.92 to 1.30 grains per fluid ounce. The syrup also contains small quantities of caramel, glycerine and lime juice, essential oils and plant extractives. The author states that it would be somewhat foolish to condemn the use of Coca Cola because it contains caffeine when this same alkaloid is found in tea and coffee. All statements relative to the nutritional value of bottled soft drinks are based on the assumption that the products are manufactured under clean and sanitary surroundings.—Jaffa, *Bull. Cal. State Bd. of Health*, July, 1921.—(H. N. C.)

✦

**Diphtheria Control.**—While there has been a marked advancement made in the treatment of diphtheria with a corresponding decrease in the mortality rate since the introduction of antitoxin, there has not been the reduction in the morbidity that might reasonably have been expected. This constant high incidence becomes more remarkable when it is realized that all necessary laboratory aid and epidemiologic knowledge is at hand to prevent and control diphtheria outbreaks.

Reaching beyond this, however, is our knowledge of the Schick test for the determination of those susceptible to diphtheria.

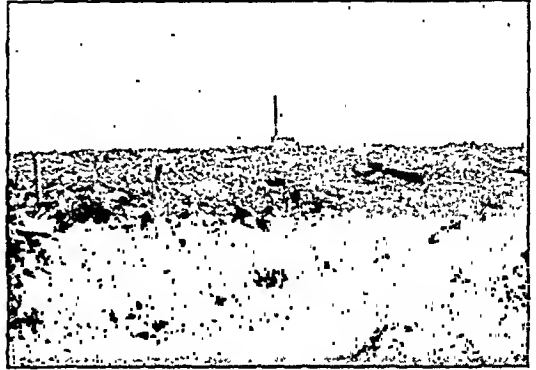
much time and money have been wasted in misdirected or inefficient methods of attack. Success will most readily be achieved where there is proper organization and where concerted efforts are based on definite plans persistently carried out. Little of permanent value will result from even a wholesale destruction of rats in a given locality if the rat-proofing of premises is neglected and neighboring areas remain heavily infested.

Rat campaigns should be organized and directed by sanitary officers familiar with the best methods and thoroughly trained in such work, all governmental agencies coöperating as fully as possible. These officers should be assisted by a corps of the most competent men obtainable, and provided with the necessary supplies in ample quantities.

The first step should be the division of the area to be treated, whether a city, county, or state, into districts the size of which will vary with local conditions and available personnel and equipment, the total area to be the largest that can be effectively handled as a unit. District

leaders should be then assigned and a district organization perfected, the men employed in destruction work being chosen with due regard to fitness. In general they should be men with a natural aptitude or liking for such work.

FIGURE 2



*City garbage dump maintaining thousands of rats surrounding incinerator that proved to be a failure owing to poor construction.*

At the same time a publicity service or educational campaign should be carried on by means of posters, through local newspapers, and with the aid of well-informed public speakers if possible, the

FIGURE 3



*Another view showing one day's accumulation of refuse and garbage in same place. From this dump thousands of rats invaded adjoining grain fields and many passed on into the city seen in distance, until controlled by use of barium carbonate under the direction of the Bureau of Biological Survey.*

to be somewhat irregular. In some instances, there was evidence of a rapid multiplication, while in others there was apparently neither growth nor toxin formation. In all of the latter cases, however, the organism was found to be viable. A temperature of 37 C., as contrasted with room temperature, accelerated the development to a certain extent. When multiplication had progressed readily, 0.5 c.c. of the spinach juice per os proved sufficient to kill guinea-pigs, usually within eighteen hours.

The growth of *B. botulinus* in canned spinach is accompanied by the evolution of gas as well as by the elaboration of the specific toxin. In only one instance had toxin formation advanced to such a stage as to produce a fatal result, while at the same time gas production either had not occurred or was insufficient to cause bulging of the can.

Of 174 samples of canned spinach taken from suspected lots, *B. botulinus* or its toxin was found in six. In every case, the organism was of the A type. These six toxic cans were all "hard swells," and when opened the odor was distinctly offensive.

The destruction of foodstuffs deemed to be abnormal, either by appearance of the containers or by the odor, should prevent the greater number of the outbreaks of botulism. From the public-health aspect of the problem, the last point is of especial importance.—S. A. Koser, R. B. Edmondson and L. T. Giltner, *J. A. M. A.*, Oct. 15, 1921, 1250.—(D. G.)



**Etiology of Diabetes.**—The records of 229 diabetic patients have been analyzed by Mitchell with a view to suspected etiologic agencies. His study is based on 116 diabetics who could give reasonably trustworthy statements concerning diseases in their grandparents (exceptionally the great grandparents), parents, uncles and aunts, cousins, nephews and nieces, and children. It is known that some races and families are specially subject to infectious or toxic damage of certain viscera; the lesions are readily revealed by necropsies, and clinical histories show the high frequency of the hereditary association. When an individual, with or without hereditary susceptibility, becomes potentially diabetic through pancreatic injury, overeating (perhaps of carbohydrate especially) and obesity contribute to increase this tendency and develop an active diabetes, while abstemious living may keep the disorder latent throughout life. Because

the degree of pancreatic damage which suffices for active diabetes in an obese person is insufficient for producing it in a thin person, diabetes developing in thin persons is generally more severe than that which occurs in the obese. Prevention of diabetes, even in the susceptible families, may be expected more and more from prevention of the primary cause, through prevention and improved treatment of infections. Avoidance of gluttony (in carbohydrate or other food) and of obesity Mitchell says may be expected to prevent a large proportion of latent cases from developing. Precautions against infections (early removal of threatening foci in teeth, tonsils, appendix, gall-bladder, etc.) and against dietary excesses are most important in the members of predisposed families.—J. W. Mitchell, *Med. Record*, Oct. 1, 1921, 575.—(D. G.)



**Looking Glasses in Schools.**—To encourage cleanliness and tidiness among school children Dr. D. J. Thomas, M.O.H., and Dr. Z. M. Scruby have recommended to the Acton education committee that mirrors should form part of the ordinary school equipment. They write: "A looking-glass has a very distinct educational value, and the more careless the home, the more profitable it is that a looking-glass (if one is found at all) will be only a few square inches in size. The consequence is that children who are frequently reprimanded for their untidiness and dirtiness scarcely ever see themselves, and so lose the strong personal incentive to improvement which they might gain if they had the opportunity of contrasting their own untidy appearance with the neatness of many of their school-fellows."—*Med. Officer*, Oct. 1, 1921, 152.—(D. G.)



**Maternity Center Association Routines.**—The Maternity Center Association, 370 Seventh Avenue, New York City, has recently issued a circular, "Routines of the Maternity Center Association," which gives valuable data concerning maternity and infant welfare. The subject matter is classified under the following heads: (1) Clinic Routine, including the subjects of nurse's duties; doctor's duties as outlined on doctor's record; duties of clinic assistants; (2) Clinic Equipment Standard; (3) Routine for Prenatal Visits; (4) Contents of Nurse's Bag; (5) Advice for Mothers,

aim being to focus the attention of the public on the objects of the work, and enlist local interest and coöperation, especially in the formulation and enforcement of the necessary ordinances covering garbage disposal and the construction and rat-proofing of buildings.

The work once begun should be prosecuted vigorously and thoroughly, rat-proofing, elimination of all rat shelter, care of garbage, trapping, and poisoning operations being carried on simultaneously at as many points as possible, covering in a general way the entire area. There is a popular prejudice against the use of poisons, but where rats are present in large numbers recent experience has indicated the advisability of their employment under properly controlled conditions. The use of gases also may safely and advantageously be resorted to in places, the object being to neglect no destructive agent that will facilitate or hasten the extermination of the enemy. The bacteriology of plague and other rat-borne diseases should be thoroughly understood and a standardized technique covering the determination of these developed by a competent staff. Laboratory studies should be systematically carried on, especially in every large seaport in the country, in order to anticipate epidemics and furnish a record of progress in dealing with this phase of the work.

#### SYSTEMATIC TRAPPING EFFECTIVE

One of the best-known methods of destroying rats is systematic trapping, in the direction of which every health officer should be an adept. This means usually the placing of traps in considerable numbers and in accordance with definite plans. If the area to be covered is large and the rats numerous thousands of traps may be required. Much time and effort is frequently wasted in desultory trapping at poorly-chosen points, or with traps of an ineffective type. In a properly organized campaign, traps will be set at fairly regular intervals in places most likely to be visited by rats, depending of course upon the degree of infestation. In general these will be at or near

entrances to buildings, or to rat burrows, along walls, or wherever there is evidence that rats are in the habit of passing.

Where traps are being placed in large numbers, some system of marking their location, depending upon local conditions, should be adopted in order to save time and the loss of traps. In or about warehouses numbers marked in chalk may often be used, and traps should be visited in the same order in which they were set.

The use of cage traps may be desirable in places in order to secure material for laboratory examinations, but for general destruction work snap traps of several designs are much more effective. The particular type of snap trap chosen should be one in which the trap will be sprung by a rat in passing and the animal caught regardless of whether it was attracted by bait. This is best accomplished by selecting a trap combining some means of fastening bait with a low, fairly broad treadle or an elevated wire released by the animal in passing underneath. Barrel or pit traps and similar devices may be used to advantage for catching rats under special conditions, but they are usually clumsy in operation and unless the animals are very numerous the results are apt to be disappointing and out of proportion to the efforts expended.

A striking example of results that may be attained by systematic trapping was furnished at the Bush Terminal Warehouses in Brooklyn, New York. These warehouses, extending for a length of 11 city blocks, with a depth of from one to three blocks, were taken over by the Government for war purposes and were found to be infested with thousands of rats. At it was planned to use them for carrying a 30 days' supply of subsistence and clothing for the overseas forces, the need of protection against rats was obvious. At the request of the quartermaster officer in charge, a representative of the Bureau of Biological Survey, U. S. Department of Agriculture, was detailed in January, 1918, to inspect the buildings and to recommend methods of

"Some Relations Between National Health and National Strength." He summarized conditions and some of the methods of educational work in China as follows: (1) Before modern health practices will be accepted by the Chinese people who do not understand them, general health education work is of prime necessity. (2) Because the Chinese and foreign conceptions of health subjects differ so widely, special methods have to be devised to interpret modern health ideals to suit the Chinese mind. (3) It has been found of some value to use three dimension moving apparatus built on a large scale with each piece of apparatus designed to visualize one idea. In the demonstration of this apparatus use has been made of well known citizens in the audience. (4) After a general presentation of some of the relations between national health and national strength, a practical program with its special appeal to the local community has been presented.



**Conference on Infant Welfare.**—The Second English-Speaking Conference on Infant Welfare was held in London, July 5-7, 1931, under the auspices of the National League for Health Maternity and Child Welfare. Six hundred delegates representing twenty-six English-speaking countries were in attendance. The United States Public Health Service, the American Public Health Association, and the American Child Hygiene Association were represented by Dr. Taliaferro Clark, surgeon of the United States Public Health Service.

The Conference was held during the celebration of the National Baby Week, in connection with which an interesting display of exhibits and posters relating to the welfare of mothers and babies had been prepared. This exhibit, together with daily demonstrations on the care of the baby and free consultations and advice on the health of mothers and young children, was available to visiting delegates. In addition, during the Conference, by special arrangement, numerous infant welfare centers, resident institutions for mothers and babies, day nurseries and nursery schools were open for inspection by the delegates.

The question of residential provision for mothers and babies occupied the first day's sessions, the following papers being pre-

sented: Maternity Homes, Dr. Janet Campbell, senior medical officer, Ministry of Health; Provision for Blind Babies, Miss E. Walker Finlay, representing the National Institute for the Blind; Provision for Ailing Children, Dr. C. J. McAlister, honorary physician to the Royal Liverpool County Hospital for Children; The Value of Wards for Ailing Infants, Dr. H. B. Gladstone, medical officer to the Sydenham Babies' Milk Depot, Clinics and Hostel; Provision for Unmarried Mothers and Their Babies, Mrs. Cyril Smithett, representing the National Council for the Unmarried Mother and Her Child; Accommodation for Mothers and Infants under the Poor Law, Miss M. E. Broadbent, manager of the Metropolitan Asylums Board; Some Economic and Administrative Aspects of the Problem of Residential Provision for Mothers and Babies, Miss J. Halford, secretary, National League for Health, Maternity and Child Welfare.

On the second day of the Conference the program was given over to "The Supply of Milk: Its Physiological and Economic Aspects." The following papers were read: The Milk Supply, Nathan Straus, founder of the Infant Milk Depots of the United States; Milk in Its Economic Aspects, Dr. Stenhouse Williams, director, National Institute for Research in Dairying; The Production of Clean Milk from a Producer's Point of View, Mr. F. Arnold Lejeune, manager, Grade A (Certified) Dairy, Lord Raleigh's Dairy Farms; Supply of Milk to Expectant Mothers, Nursing Mothers and Infants, Dr. E. W. Hope, M. O. H. for Liverpool; Sources of Milk for Babies—Maternal Milk and Goats' Milk, Dr. A. Dingwall Fordyce, physician, Royal Liverpool County Hospital for Children; The Physiological Aspect of the Milk Supply, Dr. J. C. Drummond, lecturer in physiology, University College, London; Some Biological Aspects of Milk Feeding, Dr. Harold Waller, medical officer to the Royal College of Saint Katharine.

The final day of the Conference was given over to the discussion of "Inheritance and Environment as Factors in Racial Health." The following papers were given: Inheritance and Environment as Factors in Racial Health, Dr. Helen MacMurchy, chief of the

controlling or eradicating the rats. Six or eight gross of snap traps recommended were purchased and four men set to work placing them, with the result that each day's catch was at first more than a barrelful. At the end of the year the officer reported that the rat-catching campaign, persistently carried on, had reduced the rats to a negligible number and an inventory of supplies on hand when the warehouses were 90% filled showed no damage by rats except an occasional gummed label gnawed from the outside of a box. He estimated that between 35,000 and 50,000 rats had been killed and that the military stores destroyed had not exceeded \$50 in value.

#### VALUE OF POISONS

A popular prejudice against the use of poisons in killing rats is well founded, as the danger of accidents cannot be over-emphasized. With supervision by health officers familiar with their effects, however, the use of certain poisons under favorable conditions is strongly recommended, owing to the large number of animals that may be easily and quickly destroyed. And poisons may often be very advantageously employed at the beginning of a rat-killing campaign which is to be continued by the use of traps.

It often has been the experience of health officers that many poisons, when mixed in killing proportions with food, are readily detected by rats and that the baits are apt to be avoided. The epicurean tastes of rats are well known, and the problem is, therefore, to find baits sufficiently attractive to insure the ingestion of a fatal quantity of poison.

Barium carbonate is apparently less repugnant to rats than most poisons, and when properly administered is exceedingly effective. It possesses also the advantage of cheapness, and if reasonable care is exercised there is little danger from it to human life. Owing to these marked advantages over most other poisons, its general use, wherever warranted by local conditions, is advocated in bulletins containing directions,

issued by the Bureau of Biological Survey, U. S. Department of Agriculture; it is also being exploited commercially on a considerable scale.

The effectiveness of barium carbonate as a rat poison may be judged by some recent commercial demonstration work carried on with the consent and under the supervision of the local health officer in Center Market, Washington, D. C., which covers an area of about one city block. The bait employed was composed of a finely-chopped and very wet mixture of oatmeal, chicken entrails, fish heads, and cooked sweet potatoes, to which was added powdered barium carbonate amounting to 15 to 20% of the whole. At closing time on the evening of October 10, 1920, a tablespoonful of this prepared bait was placed on each of about 500 small wooden butter trays, which were distributed on the floor, where rats are likely to pass, throughout the market. Next morning\* 48 dead rats were picked up and photographed, and while 37 others are known to have been killed, the record of the total number destroyed is doubtless incomplete. A significant feature of this work was the fact that the baits were sufficiently attractive to rats, although placed in the open market near easily accessible general food supplies of many kinds.

In connection with the use of barium carbonate, the desirability of placing very wet baits is emphasized, as they seem to be more acceptable in this condition, and some of the poison adhering to the feet of rats is apt to be licked off and swallowed.

Phosphorus is another poison which has been employed successfully in the hands of health officers in rat-killing campaigns, but unless skillfully prepared it may be highly inflammable and therefore dangerous, especially to wooden construction.

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\*A picture of this killing of rats has been presented in the *News Letter* for February, 1921. The poison was, however, inadvertently stated to be barium chloride instead of barium carbonate.

in securing an Injunction and Abatement Law, amendments to the Tenement House Law, and amendments to the Code of Criminal Procedure which made prostitution, regardless of where the offense was committed, a violation of the law.

The report emphasizes the necessity for law enforcement and educational measures in the campaign for civic cleanliness. "Without these," it says, "dispensaries and hospitals to deal with venereal disease must be continued indefinitely, if not increased. While the Committee of Fourteen is a law enforcement organization, it works in the closest coöperation with those in the allied educational and medical activities."

The Committee announces its intention to work in 1921 for new legislation on the following lines: First, a law for the licensing of hotels; second, an amendment to secure a more uniform and satisfactory disposition of cases of males charged with solicitation and procuring; and third, an amendment to the appeal procedure from decisions in the magistrate's courts.

The Women's Court established in 1910 has been a distinct aid in dealing with women charged with sexual offenses, claims the Committee, but no similar court exists to hear cases of men charged with solicitations and procuring. "They are tried in the district courts before magistrates who, as a rule, are without special knowledge of the complex problems of commercialized vice."

In 1918 the General Health Law was amended to include provisions for the examination by the Board of Health of all persons suspected of suffering from venereal diseases, persons convicted of prostitution being declared such suspects. These examinations disclose that about 50 per cent of the prostitutes convicted in the Women's Court are suffering from venereal disease in a contagious stage. "This proportion is low as compared with reports of similar examinations in other cities," reports Frederick H. Whitin, secretary of the Committee, "and is due to its being limited to those in an infectious stage of the disease." The magistrates of the Women's Court are coöperating with the Health Department in disposing of these cases so as to assure adequate treatment of the disease.

The total number of prostitution cases in

the Women's Court has varied greatly in different years, the general tendency being downward. This tendency is shown in the figures for the years 1911-1920, there being 5,365 cases in 1911, as against 1,308 in 1920. Increases in 1914-1915 and 1918 are ascribed by Mr. Whitin to "greater police activity under Commissioner Woods" and to "war conditions" respectively.

The steady decrease over the 10-year period, he continues, "corresponds to the improvement of street conditions and is the result of the amendments which have been secured and the enforcement of law by the police and courts."—*Social Hygiene Bulletin*, May, 1921, 3. (D. G.)



**Malnutrition.**—Malnutrition is defined as a condition of undernourishment or underweight. The method of detecting malnutrition is by frequent (monthly) weighings, and comparing the results obtained with data in standardized tables giving the weights and height for boys and girls at different ages. Children suffering from malnutrition are usually below normal weight and height, and do not gain as rapidly as they should. Such children are pale, dull, and listless. They have dark rings under the eyes. They tire easily, and have no ambition for work or play. Often they fall behind in their studies. They are nervous, fretful and hard to please. They do not, as a rule, eat with relish or sleep soundly. It is estimated that at least 20% of the school population in the United States is suffering from malnutrition.

Among the most important causes of malnutrition the following are given: 1. Lack of sufficient food. 2. Lack of the right kind of foods. 3. Eating irregularly and between meals. 4. Excess of candy, sweets, pastry, etc. 5. Insufficient mastication. 6. Excessive use of tea and coffee. 7. Insufficient sleep. 8. Habitual constipation. 9. Excessive stimulation and emotional excitement. 10. Long and vigorous playing. 11. Overwork in or out of school. 12. Decayed teeth, enlarged or diseased tonsils. 13. Malaria or hookworm.—Taliaferro Clark, M. D., *Public Health Reports*, April 29, 1921. (M. P. H.)



## USES OF GASES

The checking rat immigration now generally recognized, officers, and cannot be too strongly stressed. Stringent quarantine regulations rigidly enforced, and systematic and complete destruction of rats on board ships, are the best insurance against the entrance of plague. For this purpose hydrocyanic acid gas, also used extensively as a highly effective insecticide, is gradually replacing sulphur dioxide, over which it has so many advantages that the two should no longer require comparison. Exposure to this gas is, however, so quickly fatal to all animal life that competent direction of the work is essential as a safeguard against accidents.

Because of its volatility, hydrocyanic acid gas is adapted to use in places capable of being tightly closed, such as the hold or spaces between the bulkheads of a ship. In contrast, heavy gases, such as that generated by carbon bisulphid, may be employed to excellent advantage in treating burrows of brown rats. It is suggested that some of the heavy gases developed for war purposes might be utilized in the destruction of brown rats on a large scale in the sewers of certain cities where they are otherwise difficult to deal with.

## SUMMARY

Owing to a strange human indifference to vital interests, which must be overcome through education, rats are still allowed to thrive and multiply exceedingly in many places. This is due chiefly to faulty construction of many kinds, to improper disposal of garbage, and to the prevalence of general insanitary conditions which afford an abundance of food and shelter to the enemy. In the correction of these conditions health officers, federal, state, and municipal, should take a prominent part, and, in coöperation with as many private agencies as possible, organize and carry on such systematic, far-reaching, and persistent

rat warfare that these obnoxious rodents surely will be eliminated.

The control of rats, like that of other undesirable immigrants, should begin with the prevention of their landing at the ports; but this public duty falls to the health officer instead of the regular immigration official. Much may be accomplished by the thorough treatment, whenever practicable, of ship and cargo with hydrocyanic acid gas, or some other fumigant, and the isolation of the ship by means of metal discs on shore lines and by gangways raised at night. Efforts to exclude and to destroy rats should be centered in the seaports, as these are the rat strongholds, and the places where centers of plague infestation tend to develop. This can readily be done only by adopting standardized methods of proved efficiency, to be prescribed in accordance with varying local conditions.

Rats are cunning stowaways and the extension of rapid transit to include the most isolated places will make unremitting vigilance necessary everywhere in order to detect and destroy such introductions, and prevent the establishment of new colonies.

A simultaneous and widespread educational campaign should accompany all rat-proofing and rat-killing operations. Sporadic or incomplete attempts to control rats in particular districts, leaving neighboring areas infested, result in rapid reinfestation of cleared areas and accomplish little or nothing of permanent value. Success will depend upon coördination of efforts, including the enforcement of carefully considered ordinances requiring the rat-proofing of structures in general, until not only whole cities, counties, and states, but eventually the entire country is practically free of the pest.

An effective nation-wide rat warfare will require very large appropriations of public funds, the expenditure of which is justified by the facts that the value of food eaten or destroyed, together with other damage to property by these animals in the United States, is estimated to

*Child Labor Taxed:* Section 1200 puts a tax of 10 per cent of the entire net profits per annum on any mine, quarry, mill, cannery, workshop, factory, or manufacturing establishment which employs children under sixteen years of age, or where children under fourteen have been employed, or where children between fourteen and sixteen have worked more than eight hours a day or more than six days a week, or after the hours of seven p. m. or before six a. m.

A. 2547. Amendment to Veterans' Bureau Act. Introduced by Senator Robinson, October 5, 1921. Referred to Committee on Finance. This amendment would add a new paragraph to Section 19 of the Veterans' Bureau Act of August 9, 1921. It provides that when a beneficiary has been rated by the Public Health Service or War Risk Insurance Bureau as permanently or totally disabled, or has been or may be rated as temporarily disabled and has been continuously so for six months, as found by competent medical authority, so that he can not successfully follow any gainful occupation, such beneficiary shall be adjudged as totally disabled and entitled to all benefits under the compensation acts.

S. Res. 93. Investigation of Veteran Care. The Senate Committee, headed by Senator Sutherland and including Senators Walsh (Mass.), Calder, Weller, and Pomerene, issued its second report on October 30, 1921 (Report No. 233, part 2). Among specific recommendations were: The appropriation of \$16,400,000 for hospitals; transfer of all government hospitals, including soldier homes not needed by the Army or Navy, to the Veterans' Bureau; creation of a chaplain corps for service in hospitals and training centers; provision of cemeteries at soldiers' hospitals; interment of veteran dead; standardization of training, permitting the applicant to select as far as possible his own vocation; extension of existing insurance to \$10,000 for each policy-holder if he wants it, and extension of insurance and compensation privilege to Americans who served in allied forces.

Cancellation of contracts with state, municipal and private hospitals which were not in existence April 1, 1917, and with all similar institutions which after inspection are found unsuitable was recommended as one administrative reform. Others under this head included issuance of rules and regulations for

the maintenance of order and discipline; frequent and thorough inspection of hospitals and training centers; elimination of politics from appointments; and establishment of additional vocational centers at institutions where mental and tubercular patients are under treatment.

T. D. 3239. Regulations for Medicinal Use of Malt Liquors and Wines. These regulations were issued on October 24, 1921, by D. H. Blair, Commissioner of Internal Revenue of the Treasury Department, with the approval of Secretary Mellon. They had previously been prepared but held up, as it was thought that the Willis-Campbell Anti-Beer Bill (H. R. 7294, S. 2116) (see Statements No. 8, p. 4; No. 9, p. 4; No. 10, p. 8; No. 11, p. 2; No. 12, p. 2) would be finally passed, so that there would be no necessity for these regulations. The bill has passed both branches of Congress, but disagreement has arisen over the conference report, and the bill has been put over until the Senate takes action on the Tax Revision measure.

The first portion of the new regulations deals with the manufacture of intoxicating malt liquors, such as beer, ale, porter, malt extracts and similar fermented malt liquors containing one-half of one per cent or more alcohol. It is required that these liquors can be manufactured for medicinal purposes only by a duly qualified brewer, who must first obtain a permit upon deposit of bond. The liquors can be sold by the brewer only in bottles and closed cases. Another permit must be obtained for the bottling house. The bottles must be adequately labelled and also carry a statement "For medicinal purposes only. Sale or use for other purposes will cause heavy penalties to be inflicted." The case must likewise be labelled.

The requirements for physicians who prescribe such liquor may be summarized in the order they are given, as follows:—

a. Prescriptions for these medicines may be filled only by a licensed pharmacist who is also a retail druggist, or a licensed pharmacist in the employ of a retail druggist. The name of the druggist must appear on the prescription.

b. Prescriptions are not refillable and must be cancelled after use. The regulations declare that a pharmacist should refuse to fill any prescription for liquor if he has any reason to believe that physicians are prescribing for other than medicinal uses, or that a patient is securing through one or more physicians quantities

be \$200,000,000 per annum, and that the loss to the nation in lowered health and efficiency is incalculable.

With the advance of our knowledge of the life habits of animals, and the complex relationships existing in nature, the general field of parasitology is ever widening before us. The determination of the complete rôle of the rat, the great human parasite, in the transmission of disease is a very important field for further laboratory investigation by health officers, and this should promote the ex-

termination of the animals by emphasizing the danger to which we are exposed.

Rats are no longer regarded chiefly as merely an unavoidable economic burden, in which health officers have little or no concern; instead, their presence is recognized as a civic reproach and a sanitary menace of the first magnitude, engaging the active interest of health officers everywhere. Civilization demands the consolidation of all available forces in the removal of the rat menace to the health and well-being of the human race.



## AN ACCURATE METHOD FOR DETERMINING THE ALKALINITY IN HYPOCHLORITE SOLUTIONS

J. A. WESENER, M. D.,

and

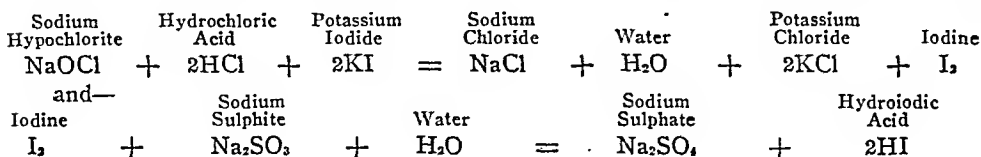
G. L. TELLER, M. S.,

*The Columbus Laboratories,  
Chicago, Ill.*

Read before Laboratory Section, American Public Health Association, at San Francisco, Cal.,  
September 15, 1920.

ANYONE who may have been called upon to make a determination of the alkalinity of a solution of sodium hypochlorite or chlorinated soda has been confronted with the practical difficulty of such a determination. All known indicators of acids and alkalis are almost immediately destroyed by the action of the chlorin upon them. The Columbus Laboratories were called upon a few years ago to make a series of determinations of this kind and the writers devised a method which was found to be rapid, convenient and accurate. This method consists of the removal of the active chlorine and the iodine which it releases by the use of dilute solution of

sodium sulphite in the presence of a known quantity of a decinormal solution of hydrochloric acid and subsequent titrate of the excess of decinormal acid used by a volumetric solution of sodium hydroxide. The difference between the volumes of the hydrochloric acid used and the volume of alkali required to neutralize the excess of acid shows the volume of decinormal hydrochloric required to neutralize the alkalinity of the amount of the hypochlorite solution taken. From this the percent of alkalinity can be readily expressed. The active chlorine is removed by the sodium sulphite according to the following well known reactions:



count of the destruction of a large part of this diverted supply of milk the law of supply and demand was not operative to reduce the cost to consumers in the District. The question was raised as to whether the people of the District wanted tuberculin-tested milk as required by regulations of the District health office or whether they would be satisfied with pasteurized milk which the attorney for the distributors said was sufficient in Baltimore, Philadelphia, Harrisburg and other big cities, and which they claimed Dr. Wiley and other scientists had testified was sufficient protection for the consumer. Mr. O'Brien suggested that two standards of milk should be allowed to enter the District market, one tuberculin-tested, for those who are willing to pay the higher price, and pasteurized milk for those who are satisfied that pasteurization is a sufficient protection. In reply to a question from Representative Millsbaugh, Mr. O'Brien said he believed that if these two kinds of milk were allowed to come into the District, it would mean a reduction of  $2\frac{1}{2}$  to 4 cents a quart on all the milk because he believed the producers in near-by territory who are now members of the Maryland-Virginia Producers Association would be forced to cut the price on their tuberculin-tested milk to meet the open competition.

S. 1588. Prevention of Venereal Diseases in the District of Columbia; S. 1616. Repression of Prostitution in the District of Columbia. Hearings on these two bills were held by the Senate Committee on the District of Columbia on October 13 and again on October 20. S. 1588 requires reporting of venereal diseases to the health officer and provides for measures for their discovery and to prevent their spread. (See Statement No. 2, p. 18, for outline of similar House bill and Statement No. 7, p. 5, for House hearings.) S. 1616 makes it unlawful to maintain houses of ill fame or to engage in or abet prostitution.

On October 13, the witnesses included Chief Justice W. I. McCoy of the Supreme Court of the District of Columbia and Judge R. Hardison of the Police Court, both of whom severely criticized alley conditions in Washington.

Mrs. Mina Van Winkle, lieutenant of the Woman's Bureau of the Police Department, said that during the three years the Woman's Bureau had been in operation it was found that some 3,000 girls, who had been brought in

as offenders against the law, had also offended against sex. She urged the necessity of broader and more stringent laws to enable the authorities to protect these girls and to keep them from becoming prostitutes.

Major R. W. Gessford, Superintendent of Police, said that in the interest of public health, the law should be amended so as to enable the police to take up persons known to be afflicted with venereal diseases and see that they receive treatment.

Dr. Valeria Parker, of the Interdepartmental Social Hygiene Board, urged that action be taken to protect government workers from the results of social crimes.

Bascom Johnson of the American Social Hygiene Association testified that the District of Columbia was far behind the states in the matters of laws controlling offenses against social hygiene.

Other witnesses included the surgeon in charge at Walter Reed Hospital, representatives of the Navy medical corps, the Public Health Service and the District Attorney's office.

On October 20, alley conditions were again criticized by spokesmen for the Emergency Housing Association, including W. D. Mahoney, secretary, and the Reverend J. M. Waldron, colored.

Dr. W. A. White, superintendent of St. Elizabeth's Hospital discussed paresis and social hygiene; Dr. G. M. Kober of the local Social Hygiene Society urged a system of notification; Rev. Father John Cooper discussed the moral phase of the problem.

Other witnesses included David Robinson and F. J. Hepbron of the Public Health Service; Mrs. Howard L. Hodgkins, member of the Board of Education; Mrs. J. A. Griffith, superintendent of the National Training School for Girls, and Mrs. Whitman Cross, representing many local welfare organizations. Dr. Francis Munson spoke on behalf of the local Health Department.

S. 2597. To Improve Alley Conditions in the District of Columbia. Introduced by Senator Ball, October 18, 1921. Referred to Committee on the District of Columbia.

#### NEW LEGISLATION

#### (MATTERS NOT PREVIOUSLY CONSIDERED)

H. R. 8527. Amendment of Act Creating Veterans' Bureau. Introduced by Mr. Parks

It will be seen in the above that for every molecule of hydrochloric acid consumed in this decomposition molecules of hydroiodic acid in equal number will be formed. This will react with the decinormal sodium hydroxide in the subsequent titration of excess acid without either gain or loss to the original decinormal acid solution used. The acid consumed by the hypochlorite solution is therefore due to its alkalinity.

#### Reagents.—

Sodium sulphite—approximately decinormal solution recently prepared from pure crystals.

Potassium iodide 10% solution.

Hydrochloric acid—a strictly decinormal solution.

Sodium hydroxide—a strictly decinormal solution.

Methyl orange 0.1 gram in 100 mls of water.

#### Method:

The following method of procedure has been found convenient. Add 7 mls of the hypochlorite solution to a tared 250 mls flask and weigh accurately. To this solution add from a pipette 10 mls of the potassium iodide solution and 25 mls of the decinormal hydrochloric acid. Now add the sodium sulphite solution from a burette carefully and lastly a drop at a time until the yellow color of the iodine just disappears from the solution. Then add to the flask 2 drops of the methyl orange and titrate from a burette with the decinormal sodium hydroxide until the acid in the flask is just neutralized.

Calculation.—Subtract the number of mls of sodium hydroxide used from the number of mls of hydrochloric acid taken and multiply the result by the decinormal monatomic equivalent of the kind of alkalinity supposed to be present. Divide the weight of this alkali, obtained by the weight of the hypochlorite solution taken and express the results in per cent of the original weight. For example: weight of the 7 mil hypo-

chlorite solution, 7.3 grams, 20 mls of decinormal, sodium hydroxide required to neutralize the acid remaining in solution after removal of the iodine. Five mls of decinormal acid were consumed by the alkalinity in the hypochlorite. If calculated as sodium carbonate each ml of the acid consumed is equivalent to 0.0053 grams of that alkali. The total amount in the 7.3 grams of hypochlorite solution is therefore 0.0265 grams. This for 100 grams of hypochlorite solution is 0.0037 grams of sodium carbonate and the alkalinity of the hypochlorite solution expressed as sodium carbonate is 0.37 per cent.

Kind of Alkalinity.—The above process shows only the total alkalinity. If the kind of alkalinity is required this must be arrived at independently and by some other means. Thus if it is due to a bicarbonate it will be momentarily alkaline to methyl orange, but will not be alkaline to phenolphthalein. If alkaline to phenolphthalein it may be due to sodium carbonate or to caustic soda or caustic lime. There are means of distinguishing between these forms of alkalinity and when the condition has been determined they may be expressed in the same manner as above. The relations are as follows:

0.1% Sodium carbonate is chemically nearly equivalent to 0.16 % sodium bicarbonate, or to 0.069% Calcium hydroxide.

Sodium thiosulphate decinormal solution may also be used to remove the active chlorine in the hypochlorite solution but the process is more complicated and not so satisfactory. When iodine acts upon sodium thiosulphate it forms sodium tetrathionate and sodium iodide so that we have no free hydroiodic acid formed as when the sodium sulphite is used. For this reason much more hydrochloric acid must be added in carrying out the process and the chances for error from inaccurate solutions are much greater. In trials on the same solution of hypochloric an equivalent of sodium

tant surgeon, past assistant surgeon, surgeon, senior surgeon, and Assistant Surgeon General. (Hereafter Assistant Surgeon Generals shall be known and designated as medical directors.)

In order to be commissioned or promoted, an examination must be taken as follows: from assistant surgeon to past assistant surgeon after three years' service; from past assistant surgeon to surgeon after twelve years' service; from surgeon to senior surgeon after twenty years' service; from senior surgeon to medical director after twenty-six years' service.

No officer will be transferred from the reserve to the regular list unless he has had at least three years' satisfactory service in the Army, Navy, or Public Health Service, part of that time during the war. Persons not having had such service may only be commissioned as assistant surgeons. The same pay and allowances as previously in force are provided for.

The Surgeon General would be appointed for four years from among the commissioned personnel, who had had not less than twelve years' service, by the President with the consent of the Senate. If the Surgeon General is not re-appointed at the end of his term, he becomes a medical director.

Seven professors in the Hygienic Laboratory are provided by the bill. They may be appointed to any grade below that of Surgeon General. They need not have had previous service, but must pass an examination.

The bill provides that there shall be in the United States Public Health Service a corps of nurses, dietitians, and reconstruction aids. This corps shall consist of (1) one superintendent of nurses, one superintendent of dietitians, one superintendent of reconstruction aids; (2) assistant superintendents of nurses, assistant superintendents of dietitians, assistant superintendents of reconstruction aids; (3) chief nurses, chief dietitians, chief reconstruction aids; (4) assistant chief nurses, assistant chief dietitians, assistant chief reconstruction aids; (5) head nurses, head dietitians, head reconstruction aids; (6) nurses, dietitians, reconstruction aids; (7) student nurses, student dietitians, student reconstruction aids, as from time to time may be needed and prescribed by the Secretary of the Treasury. Original appointments shall be made by the Secretary of the Treasury upon recommenda-

tion of the Surgeon General, under rules prescribed by the Civil Service Commission.

**Regulations for Narcotic Drugs.** The Commissioner of Internal Revenue has issued under date of October 19, 1921, new regulations for the enforcement of the Harrison narcotic law. These rules permit a physician, acting in accordance with proper medical practice, to prescribe or dispense narcotics for the relief of acute pain or for any acute condition. This may be done without reference to the question of drug addiction. Narcotics may also be prescribed for treatment of incurable diseases, provided (1) the patients are personally attended by the physician, (2) that he regulate the dosage, and (3) that he prescribe no quantity greater than that ordinarily recommended by members of his profession to be sufficient for proper treatment of a given case. Mere drug addiction is not considered as an incurable disease, but those suffering from infirmity or old age, who are confirmed addicts of years' standing and who, in the opinion of the physician, require a minimum amount of narcotics to sustain life may be considered in the incurable class. Ordinary addicts must be treated in accordance with the usual experience of the medical profession. The drug must not be placed in the addict's possession, nor the treatment extend over thirty days for a patient not confined in a proper institution.

**H. R. 8794. Discontinuance of the Use of Alleys of District of Columbia for Dwelling Purposes.** Introduced by Mr. Focht by request of District Commissioners, October 21, 1921, and referred to the Committee on the District of Columbia.

**S. 2601.** Introduced by Senator Myers, October 14, 1921, and referred to the Committee on the District of Columbia.

These two measures, both designed to prevent the use of the alleys of the District of Columbia in order to safeguard the public health, were presented to Congress after a similar measure had been already introduced by Senator Ball (S. 2597). All are amendments to acts already on the Statute Books dealing with public health of the City of Washington, D. C.

**Quarantine of Live Stock.** In order to prevent the spread of rinderpest, surra, foot and mouth disease, contagious pleuro-pneumonia and other animal diseases, many of which are dangerous to man, the Department of Agri-

carbonate alkalinity, amounting to 0.40% was found by the use of the sodium thio-sulphate solution as compared with 0.37% by the use of the sodium sulphite. In this process an equivalent of 79 mils of decinormal hydrochloric acid was required to replace the hydroiodic acid that would have been formed by the use of sodium sulphite and it was necessary to use a half normal hydrochloric acid to keep down the volume of liquid.

A neutral solution of chlorinated soda recently came into our hands which gave a chance of checking up the accuracy of the above described method of determining the alkalinity of this product. This solution of chlorinated soda contained .61% of available chlorine. 50 mils of this neutral chlorinated soda solution was diluted to 250 mils with pure water. 25 mils of this diluted solution was taken for each titration, and the following alkaline solutions were added in duplicate to flasks containing the 25 mils of this solution, the quantity used being given in the table below.

Sodium hydroxide ( $\text{NaHO}$ ).

Calcium hydroxide ( $\text{Ca}(\text{OH})_2$ ).

For this purpose 5 cc. of saturated lime water were used the alkalinity of which was found to be equivalent to 1.8 mils of decinormal solution.

Sodium carbonate ( $\text{Na}_2\text{CO}_3$ ).

Sodium bicarbonate ( $\text{NaHCO}_3$ ).

To the solutions containing this added alkali was then added an excess of neutral potassium iodide in solution.

Then 10 mils of strictly decinormal hydrochloric acid were added and the liberated iodine was removed by careful treatment with decinormal sodium sulphite solution.

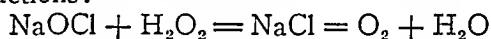
The acid remaining was then carefully

titrated with decinormal sodium hydroxide, using methyl orange as indicated. The results were as tabulated below.

It will be seen from these results that the total alkalinity supplied by the several reagents added, and by the additional decinormal sodium hydroxide required to neutralize the uncombined acid, gave results equivalent to the total amount of hydrochloric acid used, thus showing that the decomposition by the potassium iodide and sodium sulphite is wholly normal.

The significance of the above facts is emphasized by experiments comparing the reactions with those obtained by removing the active chlorine by hydrogen peroxide as has been suggested for this purpose. (Classen's *Ausgewählte Methoden der Analytischen Chemie Zweiter Band* P. 364.)

This method of removing the active chlorine depends upon the following reactions:



The details of operation proposed for this method of removing active chlorine and subsequent determination of the alkalinity are as follows:

To a definite weight of hypochlorite, about 5 grams, is added 50 mils of distilled water. To the resulting solution, 6 mils of a 3% U. S. P. hydrogen peroxide solution is slowly added. After the reaction is completed, which is indicated by the ceasing of the evolution of oxygen, 4 drops of methyl orange solution and a measured excess of decinormal hydrochloric acid solution are added. The residual acidity is then determined by titration with decinormal sodium hydroxide solution. Each mil of decinormal hydrochloric acid solution consumed

Kind of Alkali added	Quantity equivalent of decinormal solution	Decinormal alkali required to neutralize remaining acid	Total alkali required to neutralize the 10 mils. of decinormal acid
$\text{NaHO}$	2.0 mils.	8.0 mils.	10.0 mils.
$\text{Ca}(\text{OH})_2$	1.8 mils.	8.2 mils.	10.0 mils.
$\text{Na}_2\text{CO}_3$	0.8 mils.	9.2 mils.	10.0 mils.
$\text{NaHCO}_3$	1.0 mils.	8.9 + mils.	9.9 + mils.

Oklahoma.—The accompanying cut, reprinted from the *Oklahoma News* of August 13, 1921, is one of a series of advertisements dedicated by the First National Bank of Oklahoma City to civic organizations doing a real service for the community. In its attitude on the problem of good health and its tribute to the work of the Oklahoma Public Health Association the advertisement is both unusual and gratifying.

*To the*  
**OKLAHOMA PUBLIC  
HEALTH ASSOCIATION**

One of the greatest assets of an individual, city or nation is health. If a man has health he also has happiness and prosperity, for those two precious possessions depend very largely upon his physical condition. The sick man is only partly efficient, and almost wholly miserable.

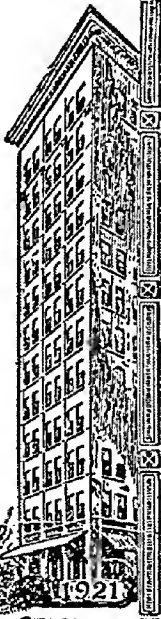
**The Modern Health  
Crusade**


Here is a tribute to you, then, for the work you are doing in promoting health in Oklahoma. You deserve a compliment for the aggressive manner in which you are waging war on tuberculosis and other diseases.

We like also the Modern Health Crusade which you have instituted among the public schools of the state. By teaching the principles of hygiene and sanitation to children you are striking a blow at misery among the next generation.

Insofar as you are eliminating disease, you are promoting the welfare not only of the individual, but of the community as a whole. The First National Bank wishes you continued success.

One of a series of advertisement made dedicated to Oklahoma City Civic Organizations in recognition of their valuable services to the community.



1889  1921

**OLDEST STRONGEST**

**FIRST**

**NATIONAL BANK**

**OKLAHOMA CITY**

Minnesota.—A series of public-health meetings was held at the University of Minnesota, Minneapolis, on November 3, 4, and 5, under the auspices of the State Sanitary Conference, and a number of allied organizations.

The Minnesota State Sanitary Conference has in the past been limited largely to medical health officers who met at the call of the State Board of Health in accordance with the provision of law providing for such an annual conference. This year a combined meeting was arranged which included voluntary organizations and all state departments which are in any way concerned with public-health problems. Both the nature of the program, the attendance and the interest manifested by all of the groups concerned, indicate that this meeting was the most important conference on public health that has ever been held in Minnesota.

The agencies participating included: United States Public Health Service, American Red Cross, University of Minnesota, State Board of Health, State Board of Control, State Advisory Commission for Tuberculosis, State Dairy and Food Department, State Live Stock Sanitary Board, State Sanitary Conference, Minnesota Public Health Association, and American Waterworks Association.



Wisconsin.—Dr. H. B. Sears of Beaver Dam has been appointed deputy state health officer for the Northwest Wisconsin District, with headquarters at Eau Claire. He succeeds Dr. V. A. Gudex, who has been assigned to the state office in Madison for work in the Bureau of Communicable Diseases.

Miss Theta C. Mead of Merrill has been named as a state supervising nurse under the Bureau of Child Welfare and Public Health Nursing of the State Board of Health, for duty in the northern half of the state. Miss Mead was formerly county nurse for Lincoln County, and for a time was supervisor of public-health nurses in Hennepin County, Minnesota. The southern half of the state will be covered by Miss Nellie Van Kooy, the first supervising nurse.

As a cause of death, cancer outstripped all other causes of death in Wisconsin in the third quarter of 1921, with 630 such deaths reported. The death-rate for the state remained at 10 per 1,000 population. Wisconsin's cancer mortality during 1920 was slightly higher than the Registration Area's, being 84.9 as compared with 83 for the Area. In tuberculosis mortality the Area had a rate of 114.2, while Wisconsin's was down to 84.2.



by the alkali of the chlorinated soda solution corresponds to an equivalent of 0.0037 gms.  $\text{Ca}(\text{OH})_2$ . It must be borne in mind here that hydrogen peroxide is not generally strictly neutral and corrections must be made for any acid present in the quantity taken for use.

When following out these details on solutions of chlorinated soda amounting to the 25 mils obtained as described above, and adding the same quantities of the several alkali solutions as shown in the table, the mixture with these several solutions required of total alkali to neutralize the 10 mils of added decinormal hydrochloric acid, quantities as follows:

- With sodium hydroxide  $\text{NaOH}$ —10.5 mils.
- With calcium hydroxide 10 mils.
- With sodium carbonate, 10.3 mils.
- With sodium bicarbonate 10.4.

This clearly shows an irregular decomposition in the chlorinated soda molecules whereby the apparent alkalinity is decreased in the case of the sodium hydroxide from 2 mils to 1.5 mils of sodium carbonate from .8 mils to 0.5 mils and of sodium bicarbonate from 1 mil to 0.6 mils which are relatively very large errors. It is only when the alkalinity is due to calcium hydroxide that the correct amount is shown.

So, too, the method of evaporating the

chlorinated soda solution to dryness in presence of ammonia and titrating with decinormal acid and methyl orange, the residue dissolved in water, described by Classen under the same reference, has been found faulty and unreliable especially in the presence of unprecipitated lime.

It should be mentioned in this connection that the method of determining the alkalinity of Carrel-Dakin's solution, by sprinkling dry phenolphthalein on the solution and depending upon its quick action to determine the presence of alkali, is decidedly faulty for the reason that the alkalinity of this solution is clearly due to bicarbonate, and the alkalinity of bicarbonate is not indicated by phenolphthalein. A Carrel-Dakin solution of chlorinated soda, also known as "neutral solution of chlorinated soda," prepared as directed, by the use of sodium carbonate and bicarbonate (see New and Unofficial Remedies American Medical Association, 1918) and which showed 0.48% available chlorine and did not show alkalinity to phenolphthalein, did show an alkalinity equivalent to 0.40% of sodium bicarbonate when examined according to method outlined above, that is, by the removal of the active chlorine by sodium sulphite and subsequent titration by the use of methyl orange.



**Deterioration of Typhoid Vaccine.**—Officials of the U. S. Hygienic Laboratory carried on experiments more than two and a half years to determine the effect of various storage temperatures on the agglutin producing properties of typhoid vaccine. Standard vaccine containing 1,000,000,000 organisms per cc. in 0.3 per cent trikresol was used and stored at four different temperatures, 5°C., 10-15°C., 20-30°C., and 37°C. The efficacy of the stored vaccine was tried out on rabbits. It was found that the highest temperatures are detrimental to the vac-

cine, so that the vaccine kept at 37°C. had practically no effect on rabbits after 18 months. The vaccine kept at room temperature had deteriorated more than that stored at the lower temperature in 6 months. The results obtained indicate that the rapidity of deterioration is in direct proportion to the temperature above 15°C. This is, therefore, the best temperature to maintain the vaccine at its maximum potency.—G. W. McCoy and Ida A. Bengtson, *Hygienic Laboratory Bulletin* 122 (July, 1920), U. S. P. H. S. (J. A. T.)

1919, shows the general decline in mortality as computed from the census and a still greater decline among policyholders, the downward tendency among policyholders being nearly twice that of the population in the Registration Area. The year 1918 is omitted in both compilations because of the influence of the influenza epidemic. It is estimated for tuberculosis of the lungs that a saving of 11,000 lives among policyholders resulted in 1920 by a decline in death-rate since 1911, a figure three times as great as in the population area. For organic diseases of the heart the general population trend has been upward, while that of the insurance group has been decidedly downward (36,000 fewer deaths than if the 1911 death-rate had prevailed). For Bright's disease the general trend has been slightly downward, while that of the insured group has been decidedly so (34,000 fewer deaths than if the 1911 death rate had prevailed). For accidents the trend has been downward for both groups (26,000 fewer deaths than if the 1911 death rate had prevailed). For cancer the incidence in the general population has increased from 74.4 to 80.5, while the insured group has remained practically stationary at 68 per hundred thousand. For typhoid fever the decline has been remarkable in both groups (from approximately 20 to less than 10 per hundred thousand). Typhoid fever is a vanishing cause of death. There were 2,200 fewer deaths among policyholders than if the 1911 death-rate had prevailed. The results of other studies are shown for communicable diseases in children and for the puerperal state. The Company's campaign to prolong life has followed four main lines: (1) education of policyholders in personal hygiene; (2) organization of Visiting Nurse Service; (3) development of an Industrial Health Service Bureau to cooperate with employers in securing better working and living conditions for their work people; (4) cooperation with health and other officials of states and cities. Measured in terms of lives the saving during these years has been 38,000 lives; measured in terms of dollars and cents, \$7,530,000 in death claims. The concurrent saving in the Registration Area for the same years has been 17,800 lives and \$3,451,000 in death claims.—*Metropolitan Life Insurance Co.*, 10-page pamphlet, 1921.

**Health Problems in Industry.**—At a conference of practitioners in industrial medicine, called by the Industrial Welfare Society at Westminster on June 2, Prof. E. L. Collis stated that in 1913 they could only muster about twenty welfare supervisors at a conference at York. There was no reason why medical service in factories should not grow equally rapidly, but propaganda work among employers was necessary. Medicine could save industry millions a year by preventing breakdowns and lost time, by finding workers jobs suited to their health, and by making conditions more healthy for the workers. Miners' nystagmus, lead poisoning, anthrax, and phosphorous poisoning were comparative rarities; the things to be prevented were bronchitis and phthisis. The question is what is the best way of convincing industry of its needs.—*Lancet* (London), Vol. CC, No. 5,102, June 11, 1921.



**Importance of Industrial Medicine to the Community.**—Professor Collis read a paper on this subject before the Section of Preventive Medicine of the British Medical Association. The study of health of the industrial part of the community is the first thing to be ascertained. Different types of data are at hand. First come the disclosures of the Army-recruiting examinations. Here only 36 per cent of the male adults of age to bear arms were classed as grade one. Next, appeal may be made to mortality statistics. Here we find the agricultural laborer with a comparative mortality figure of 470. A standard set by the insufficiently paid and poorly housed agriculturist who works long hours is surely not too high to aim at. Yet the comparative mortality for printers is 773; for tailors, 799; for cotton operatives, 811; for shoemakers, 820; for iron and steel manufacturers, 837; for Lancashire coal-miners, 941; for edged tool-makers, 1,010; for costermongers, 1,507; and for general laborers, 2,301. Third, age distribution gives us some information. The number aged 55 and over, out of 1,000 occupied agriculturists, is 225; out of 1,000 cotton operatives, 69; out of 1,000 printers, 66; out of 1,000 coal-miners, 75; out of 1,000 metal workers, 98; and in the building trades, 121. There is, then, a wide field of work before industrial medicine to establish the

# OBSERVATIONS ON DEFICIENCY DISEASES IN LABRADOR

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This observer had the rare opportunity of comparing communities of humans whose dietary could be absolutely determined. The Esquimos on the Labrador side of Belle Isle were able to get food with vitamins enough to protect them, but those on the Newfoundland side, even with milk from underfed cows, had much incidence of deficiency disease.

CHEMICAL analysis and animal experimentation have contributed greatly to our knowledge of the nutritive values of foods. The biological data have, however, for the most part been obtained from observations on small laboratory animals. Broad generalizations cannot be made until the problems of the essential factors in food have been studied also in human beings. Stefansson (*Jour. A. M. A.*, 1918, 71, p. 1715), and other Arctic explorers have described the carnivorous diet of people in Polar regions. Hawkes (*Canad. Dept. Mines, Geol. Survey Mem.*, 1916, 91, p. 29), has given an account of similar food habits of Eskimos in Northern Labrador. Very little study, however, has been made of the clinical evidence offered in the region in Labrador along the Straits of Belle Isle, where the diet is principally cereal and very low in vitamins and where deficiency diseases are known to occur not uncommonly. A study of the exact dietary and extent to which deficiency diseases occur in this region should throw a little light on some of the problems of nutrition.

The conditions fulfill the requirements of a true experiment because the dietary is known. Navigation is closed six months or more during the winter, so that food supplies must be procured in advance and the dietary cannot be changed. The observations to be recorded were made during the autumn,

winter and early summer, 1919-1920, in Labrador along the Straits of Belle Isle, to determine the exact nature of the diet and the incidence of diseases supposed to be caused by a deficient dietary. For comparison a study was made in June of a group of communities on the Newfoundland side of the Straits where beriberi and xerophthalmia were prevalent. The two districts are entirely cut off from one another during closed navigation and could be studied separately and compared to find wherein lay the difference in diet and in frequency of disease.

## DIETARY IN LABRADOR ALONG THE STRAITS OF BELLE ISLE

**White Flour.**—Bread made of bolted wheat flour is the chief article of diet. One and a quarter to one and a half barrels of flour are consumed per person per year.

**Meat.**—An average family of eight persons has one or two barrels of salt meat, pork or beef, two to four quintals of salt codfish, and one to three barrels of salt herring. Game is the only fresh meat eaten during the winter. Formerly it was plentiful but in recent years has been very scarce. A few partridges are shot in winter and various kinds of water fowls in the fall and spring. Trout are caught through ice holes in the brooks as early as May and cod and salmon fishing begin the end of June, lasting usually

port, appears to corroborate the growing opinion that it is in the volatile portions of the paint rather than in its solid constituents that one must look for the cause of the disease. The birth-rate tables per 1,000 males aged under 55 years gives a birth-rate per 1,000 for the painters as 155, being actually higher than that of clergymen, barristers, solicitors, law clerks, farmers, and graziers (148), while the figure for all males is 162. Such figures do not suggest severe lead absorption.—Sir Kenneth Goadby, *Lancet* (London), Sept. 3, 1921, pp. 489-491.

✦

**Effect of Health Legislation on the Health of the People.**—Capt. Walter E. Elliot: He began his remarks by saying that he was more than ever impressed with the value of prevention as against cure, and it appeared that prevention could only be secured by statutory compulsion. Medical skill in treatment had not advanced in the same degree as legislation, and he attributed the remarkable decline in infantile mortality and in the deaths from infectious disease largely to Parliamentary action. The expectation of life among individuals of the community had increased by over ten years during the last half century, and that increase was entirely at the useful period of life, for the man of 70 to-day had still the same expectation as a man of the same age 50 years ago.

Important excerpts from the discussion which followed are given.

Dr. Dearden: "In addition, the factory door must be opened to the general practitioner, who cannot give the service he is capable of unless he is acquainted with the industrial risks of his district. Arlidge in the past, and Prosser White to-day, are instances of the value of the general practitioner."

Dr. W. Duncan considered that the whole question of industrial medicine was one of the general practitioner. His interest is direct, for the healthier the panel patients are, the less work there is for the panel doctor. He must acquaint himself with the district industries by personal inspection. He must approach employers and get the good-will of the workers.

Sir T. Oliver was in agreement with extended use of the general practitioner, who to-day does not visit his patients while they

are at work, and is not acquainted with their occupational risks. The results are often unfortunate, as he accepts without demur the statements as to causation of illness made by the patient. These are frequently misleading, as when a post-mortem on a painter certified to have lead colic revealed the presence of a ruptured gastric ulcer.

Dr. D. W. Inglis was not convinced that the factory door was so closely barred and slammed as had been represented. This opinion was oftener held by those who had not troubled to push against the door, which nearly always gave way if the handle was turned by a combination of tact and bluff. Most factories provided facilities which could advantageously be used as sanatoriums for those convalescing from occupational risks, such as lead poisoning. He urged the need of greater knowledge in the profession of the work of the worker.—Annual Meeting British Med. Assn., Section Preventive Medicine with Industrial Diseases, *Lancet* (London), Sept. 3, 1921, pp. 500-502.

✦

**Tests for Respiratory Efficiency.**—Continuing the Milroy Lecture, Dr. Flack showed that out of some ten possible tests for respiratory efficiency, the following tests came into routine use in the Royal Air Force, as affording information of value: (1) vital capacity; (2) holding the breath; (3) expiratory force; and (4) sustaining 40 mm. mercury (endurance or fatigue test). The article discusses the minutiae of these tests and those interested should read the original.—Martin Flack, Milroy Lecture, *Lancet* (London), Sept. 24, 1921, pp. 637-641.

✦

**Confusion of Wood-Alcohol Poisoning With Diabetes.**—An editorial in the *Lancet* for September 17, 1921, page 618, calls attention to Ziegler's paper in the *British Journal of Ophthalmology*. A point worth noting is that the end-product excreted by the kidneys is formic acid and that this reduces Fehling's solution, so that a wrong diagnosis of diabetes is quite possible.

✦

**Discussion on Sepsis in Minor Wounds.**—This subject was taken up by the Transvaal Mine Medical Officers' Association, Dr. H. T. Butt, president, in the chair. The conditions at Randfontein are rather different

through October. Seal meat is plentiful the first half of June.

**Molasses.**—Molasses is used for sweetening instead of sugar. Twenty gallons per person is a usual supply for a year.

**Vegetables.**—A barrel or two of potatoes and a like quantity of rutabagas are provided by the more prosperous families. Dried peas are eaten almost universally. Twenty to forty gallons is a family's supply for a year. Small quantities of rice, onions or dried beans were found to have been procured in a few instances but are not usual. The summer is short and uncertain for gardening, but in the more favorable years enough cabbage may be raised to last until November. Dock and alexander could be used as greens as early as June but are little eaten.

**Fruit.**—Nearly every family has ten to twenty pounds of raisins and a few pounds of dried apricots or dried apples. The only fresh fruit eaten are partridge berries and another little yellow berry called baked apple. The quantity of berries provided varies, usually only three or four gallons, but in some cases as much as 18 to 20 per family.

**Butter.**—A butter substitute is eaten almost universally instead of cow's butter. Twenty pounds per person is the usual supply. Poor families had only ten, or even less.

**Milk.**—Condensed or evaporated milk is used, the sweetened condensed being the most popular. Two cases of milk are considered an ample supply for a family. The poor have only a few cans.

Eggs are not imported and very few natives have hens. Egg powder is used in making cakes for fêtes.

**Tea.**—Tea is the universal beverage. Ten to 18 cups of tea a day are not an unusual quantity. Bread, tea sweetened with molasses and butter are the basis of every meal. Every family has from twenty to forty pounds of tea a year.

Meat, salt fish, potatoes and dried peas are eaten only once or twice a week and

the supply may become exhausted in April.

#### EXTENT TO WHICH DISEASES CAUSED BY DEFICIENT DIETARY OCCUR IN LABRADOR

**General.**—Prolonged and stubborn constipation is almost universal in Labrador. Gastro-intestinal disorders are very common. The children are practically all undernourished and many are undersized. They have poor teeth. Amenorrhœa is common, especially in young women, who are poorly nourished.

The first seasonal signs of the effect of restricted diet appeared the end of March and beginning of April, four or five months after fresh food was lacking in the diet. A sudden increase in nervous instability was evident at this season. Psychoses developed in persons with a predisposition or under special strain, such as the period of lactation or unusual mental worry. In most cases improvement or recovery followed the establishment of proper diet.

**Night Blindness.**—"Night blindness" became common during April and May. A person suffering from "night blindness" is able to see during the day, but becomes blind at twilight. If he is away from home he has difficulty in finding his way and even in the house stumbles over furniture. He can see a bright light but little else. It occurs chiefly in men; one of the patients seen was a woman and the history of the disease in women could only be obtained in two instances. Children seem to be immune to night blindness as to snow blindness. The youngest patient seen was a boy of 15. It is most common in early adult life but was seen even in a man 70 years of age. Although "night blindness" occurs at the same season as snow blindness, in no case could any direct relation between the two be traced. It was not common exclusively among the very poor. It appeared in groups of people rather than in families. The degree of blindness varies in intensity and may be intermittent. It does not occur after dull days.

**The Pregnant Woman in Industry.**—The authors summarize as follows:

1. The pregnant woman is better off in the normal home environment than at work in a factory.

2. With proper supervision, however, it will not be harmful for the normal pregnant woman to work, if work is an economic necessity for her.

3. All pregnant working women should receive careful medical and vocational supervision.

4. The abnormal pregnant woman should discontinue work, and should resume it only on the advice of a competent physician.

5. The pregnant woman is an increased accident risk for the manufacturer. By means of careful supervision, however, this risk may be reduced to a minimum.

6. Any occupation that is harmful to the general woman worker is of greater harm to the pregnant worker.

7. The following types of occupations are harmful: (a) continuous sitting; (b) continuous standing; (c) repeated lifting, reaching, stretching; (d) jolting; (e) any work requiring new muscle adaptations.

8. Certain specific occupations are distinctly harmful to pregnancy and to child-bearing functions. Lead trades constitute the outstanding example of this group.—C. P. McCord and Dorothy K. Minster, *Jour. of Indus. Hygiene*, June, 1921, Vol. III. No. 2, p. 50.

✱

**Mask for Firemen.**—That a fireman's mask which will protect against all forms of smoke and chemical fumes will soon be commercially available as the result of the work of Government chemists is indicated in Technical Paper 248, "Gas masks for Gases met in Fighting Fires," by A. C. Fieldner, Sidney H. Katz, and Selwyne P. Kinney, just issued by the United States Bureau of Mines.

That the army mask gives excellent protection against smoke and the irritating and distasteful products of combustion, but will not protect against carbon monoxide atmospheres deficient in oxygen or atmospheres containing ammonia gas, is asserted by the authors. City firemen have been

overcome while wearing army gas masks for fighting fires. Gas masks of the army type should not be used in mines after fires and explosions. Self-contained oxygen breathing apparatus should be used on such occasions.

The Bureau of Mines has tested and used many types of self-contained oxygen breathing apparatus in fighting mine fires and in rescuing miners trapped in poisonous gases resulting from fires or from explosions in mines. Similar devices have been used by city fire fighters but have never been considered entirely satisfactory, owing, largely, to their weight, to the time necessary for adjusting them to wearers, and the constant care required to maintain the apparatus in good working condition. Hence there has long been need for a light, easily adjusted, and dependable breathing apparatus for protecting fire fighters from irritating and poisonous gases and smokes.

As a result of the war the gas mask, which uses a chemical filter for removing poisonous gases and fumes from air, has been developed to a high state of perfection. The mask used by the United States Army is capable of giving complete protection against all the deadly gases that have been met on the battlefield, but it does not protect against all the gases or atmospheres encountered in mines and in the industries and in fire fighting.

Notwithstanding this fact city officials and mine superintendents have been circularized by firms offering army masks with statements that they will protect the wearer in conflagrations and in mines. The untruth of such statements has been one reason for the present paper and for previous statements concerning the inefficiency of army masks under conditions other than those of the battlefield.

Copies of Technical Paper No. 248 may be obtained from the Director of the Bureau of Mines, Washington, D. C.

#### An Example

The clock sets an example  
To many a man in town;  
It never fails to take a rest  
Whenever it's run down.

—*Boston Transcript*.

If night blindness is the result of dietary deficiency, the deficiency is very slight as the cure was effected within a few hours after the diet was corrected by giving vegetables, butter or eggs. It was interesting to find that the traditional lay method of treatment, which could not be traced to the advice of any physician or nurse, was eating raw bird livers. Potatoes roasted in ashes and eaten, skins and all, cod liver oil, and seal livers were said to have been used in a few cases with good results.

**Xerophthalmia.**—Only one case of xerophthalmia was seen. The patient was an old man whose food supplies had been very scant. He was seen in May, but the eye trouble had existed for some time and was too advanced for recovery to be expected.

**Scurvy.**—Three persons having scurvy came under observation, all early in May. One man had intramuscular hemorrhages in the arm. Two brothers 16 and 19 years of age had spongy bleeding gums. About the same time several patients came with ordinary ulcerative *stomatitis*, calling it scurvy. They recovered rapidly with the administration of potassium chlorate. This suggested giving potassium chlorate to the two brothers with spongy bleeding gums in the absence of better means. Both improved and the mouth of one healed completely with this treatment. A month later it was possible to give orange juice and the recovery of the other was complete.

**Pellagra.**—Only one case of pellagra was seen. The patient was a woman 28 years of age, who had not been well during the winter. Typical skin lesions appeared the first of May. Hygienic conditions were bad. The family was very poor and had had little food but bread and tea since February. A family of five had for the winter's supplies five barrels of flour, 18 gallons of molasses, seven or eight gallons of dried peas, 22 pounds of butter substitute, two quintals of salt fish, and a certain amount of rolled

oats left over from war food requirements. An epidemic of *erythema nodosum* occurred in the same village at the time pellagra developed and similar lesions were present on the skins of the pelagrin.

**Beri-Beri.**—Two patients with beri-beri came under observation. One, a young married woman, who had suffered from a severe form for nearly a month, was seen in May only three days before her death. The patient lived in such an isolated spot that it was impossible to get proper food to her in so short a time. The second was a middle-aged man who became ill early in June. Both belonged to very poor families where supplies were scant and in the case of the young woman the hygienic conditions were exceptionally bad.

**Edema.**—During May and June four patients had edema without polyneuritis or sensory disturbances. One man had had similar trouble several years before. His son also had edema of the legs. Both recovered promptly.

Edema complicating pregnancy either with or without albumiuria has not been included in this group. A slight amount of edema of the legs without albuminuria or eye symptoms was common in pregnant women, but they came to term without incident and bore healthy children. One woman had albuminuria and considerable general edema several weeks before and after delivery.

**Rickets.**—Even with the extent of malnutrition present in children there is very little rickets. Only two cases with marked signs were seen, both of tuberculous parents. Three other children had slight beading of the ribs, but there were no enlargements of the epiphyses, bow legs, changes in the skull or other bony deformities.

#### EVIDENCE OF INCREASED SUSCEPTIBILITY TO INFECTION

The importance of the protective rôle of certain substances in the diet against infection was shown by the great prevalence of tuberculosis among men not-

**Case of Meningitis in an Infant Due to a Thread-Like Diphtheroid Organism.**—A diphtheroid micro-organism named *Corynebacterium trichodiphtheroide* was isolated as the causative agent in the case of purulent meningitis developing in an infant suffering with bronchopneumonia. It appeared as a small bacillus in the spinal fluid, grew into irregular thread-like forms on first culturing, later becoming bacillary with Gram-positive polar bodies and segments of diphtheroid type. It was not pathogenic for rabbits or cavies.—Milo K. Miller and M. W. Lyon, Jr., *Am. Jour. Med. Sciences*, 162, 593 (1921).



**Determination of the Basal Metabolism From the Carbon Dioxide Elimination.**—A method is proposed whereby the carbon dioxide elimination may be used as an index of basal metabolism. The apparatus is stable, simple and relatively inexpensive. The carbon dioxide elimination seems to be at least as accurate and possibly a more accurate index to heat production than is oxygen consumption.—John T. King, Jr., *Bull. Johns Hopkins Hosp.*, 32, 277 (1921).



**Deviation of Complement Test for Tuberculosis.**—The author has been studying at the Pasteur Institute at Paris the reaction of fixation with Besredka's new antigen in diagnosis of tuberculosis. This test is proving valuable in revealing cases in which bacteriologic examination is still negative. A positive reaction often precedes all other manifestations of tuberculosis. The findings with the intradermal auto-urine test invariably coincided with those of the deviation of complement test.—A. Grumbach, *Schweiz. Med. Wochenschrift*, 51, 831 (1921); *Jour. A. M. A.*, 77, 1373 (1921).



**The Gram Stain in the Diagnosis of Chronic Gonorrhea.**—Make thin films, air dry, stain unfixed or use very little heat in fixing. Flood slide with anilin gentian violet or a 1 per cent aqueous solution of methyl violet. Thoroughly mix with the dye on the slide a few drops, 3 to 8, depending on the amount of dye, of a 5 per cent solution of sodium bicarbonate. Allow to stand for two or three minutes. Flush off the excess stain with the iodine solution, cover with

fresh iodine solution and allow to stand one minute or longer. Wash in water as long as necessary and blot off all free water until the surface of the film is practically free of water, but do not allow the film to become dry. The success of the stain depends largely on the proper control of this step. Decolorize with acetone or acetone and ether (1 part of ether to from 1 to 3 parts of acetone) until the acetone flows from the slide practically uncolored. This usually requires less than ten seconds. The acetone should be placed on the slide; the slide should not be dipped in the decolorizer. Blot dry. The slide quickly dries without blotting. Counterstain for five or ten seconds with a 2 per cent aqueous solution of safranin O. Exposure to the counterstain can be increased, depending on the excellence of the violet dye used. Wash off excess stain by short exposure to water, blot and dry. Immerse in xylene or turpentine for several minutes or until clear. Examine.

The addition of sodium bicarbonate increases the value of the Gram stain as an aid in the diagnosis of chronic gonococcal infection. It does this in two ways: (a) it results in a heavier concentration of the violet dye remaining in the gram-positive organisms; (b) it causes some of the gram-positive organisms which would otherwise appear gram-negative to retain the violet dye. Sodium bicarbonate does not cause the gram-negative organisms to retain the violet dye. The sodium bicarbonate probably affects the Gram reaction by increasing the penetration and concentration of the dye within the cell rather than by any action on the cell-wall or the molecules of the dye-iodine precipitate.—Victor Burke, *Jour. A. M. A.*, 77, 1020 (1921).



**Culture Medium and Agglutination of Meningococcus.**—The authors state that individual strains of meningococci when grown on nut nasgar medium become more agglutinable than when they are grown on legumen agar, with or without the addition of blood. The observation may be a possible explanation of some of the "inagglutinable" strains of various bacteria. The agglutinogenic substance in meningococci shows also a relation to the content of nutrient mediums. It is more active in coccal emulsions prepared from nut nasgar



withstanding that they live chiefly in the open air. The women go out very little, but the men lead an active out of doors life. During May and June they work either out of doors or in open store houses, preparing their boats and fish nets. During the summer and autumn they fish, and in the winter every fine day they are in the open chopping wood. Wood and water must be hauled, so they spend considerable time driving their dog teams. Although they live in small quarters during the winter and the windows are rarely opened, considerable air must seep through the thin walls of the frame houses and the air is not foul as one enters the houses.

EPIDEMIC OF BERI-BERI AND XEROPHTHALMIA OF THE NEWFOUNDLAND SIDE OF THE STRAITS OF BELLE ISLE

In contrast with the conditions described on the Labrador side of the Straits of Belle Isle, where deficiency diseases occurred only as isolated cases, over a hundred cases of beri-beri developed in a group of communities on the Newfoundland shore across the Straits. Xerophthalmia was equally common. Frequently, when one member of the family had beri-beri, another had xerophthalmia. In one instance the patient was taken sick in December; the majority of cases, however, did not occur until March. In the region where beri-beri and xerophthalmia were prevalent the infant mortality was very high in contrast with a low infant mortality on the Labrador side of the Straits.

In the beri-beri patients edema and sensory disturbances were the chief symptoms. Swelling of the legs and ankles, coming on gradually, was the onset described in almost every instance. Pain, numbness burning or tingling was complained of by practically all. Sometimes the pain did not begin until the swelling began to disappear. Shortness of breath occurred in about one-fourth of the cases. Abdominal pain or numbness was present in about one-third of the patients. Eye trouble rarely oc-

curred with beri-beri. One patient said he had been blind all spring. Motor symptoms were described as "weakness" rather than paralysis. One patient reported that he had had beri-beri in the fall and had taken fresh whole milk and had been cured. Another had tried the same treatment from April to June and was no better.

DIETARY OF THE NEWFOUNDLAND COMMUNITIES

The difference in diet in the two regions was slight but distinctive. On the Newfoundland side of the Straits the people had no canned milk and no vegetables, i. e., neither potatoes nor rutabagas, as in the other district. There had been very little fishing after August, in contrast with the Labrador side where fishing continued through October, i. e., the supply of fresh fish was cut off nearly two months earlier. In the Newfoundland region people are considered much more prosperous. They have many cows, while in Labrador there are very few. A great part of the people eat butter rather than the butter substitute. All milk is scalded immediately, often for an hour or an hour and a half, to facilitate the separation of cream for butter-making. All cream is made into butter. The cows were not milked later than December and in some cases October. The hay had been cut late after the grass was dry, and the cows either perished before summer or were in such poor condition in the spring that even with green pasturage they did not recover until the middle of the summer. Cattle are fed hay only and are never given salt.

DISCUSSION

It is evident that from a nutritional point of view the people in both regions are in a "twilight zone" where very slight changes in the diet may cause deficiency diseases. Cereal grain is the chief source of protein. The usual sources of vitamins are lacking or inadequate. It is probable that a certain amount may be present in molasses. Tea may be an important source of vitamins.

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Except in isolated cases, where the diet fell well below the average, the inhabitants on the Labrador side of the Straits were protected from deficiency diseases by the vitamins furnished by small quantities of canned milk and vegetables and the additional protein supplied by a longer season of fresh fish. Condensed and evaporated milk was a more satisfactory source of vitamins than butter made from the milk of cows fed on poor hay deficient in vitamins. Cow's milk cured beri-beri in the fall soon after green pasturage, but had lost its anti-neuritis substance in the spring after the cattle had had only dry grass.

Mothers on a diet sufficient to protect against deficiency diseases were able to nourish their sucklings, but wherever the diet dropped below the requirements for protecting against beri-beri the quality of mother's milk was such as to be insufficient to support life although the quantity was little reduced.

The coincidence of the occurrence of beri-beri and xerophthalmia indicates a modifying interrelationship of dietary elements. A deficiency in one type of vitamin probably increases the amount required of another. A poorer source of protein may also increase the amount required.

The growth of children is retarded very generally on a diet which produces deficiency diseases in adults only in isolated cases.

Night blindness is probably not a true deficiency disease. It did not occur in the region where other deficiency diseases, beri-beri and xerophthalmia, were common, but in places where these diseases were absent. The poor were not the only ones to suffer. The frequency of night blindness increased during April and early May and then decreased, although the dietary deficiencies continued to become more and more acute. Night blindness came at the season when nervous instability increased. Its occurrence in groups of persons rather than families also suggested a neurotic ele-

ment, but its exclusive presence in men and its ready response to treatment spoke against this etiological possibility. Night blindness is most likely a prolonged negative after-image resulting from long continued exposure to the glare of snow. Similar blindness can be produced experimentally by looking at a white sheet in a bright light. Night blindness does not occur during the short, dark winter days nor in summer when the ground is free from snow, but in spring, when the increasing intensity of sunlight makes a dazzling glare upon the unbroken whiteness of the snow. Snow blindness results in many cases. Night blindness comes at the same season but lacks the intense photophobia of snow blindness. Women go out little and so escape. It is the young men engaged in out-of-door pursuits who suffer most. The blindness varies in intensity and may skip days. No doubt it is dependent on the brightness of the day and length of exposure out of doors. It does not occur after dull days. Patients respond readily to treatment, no doubt because they stay indoors when they are troubled sufficiently to submit to treatment. Suggestion may play a role in causing night blindness by attracting the attention to the after-image. This is equally true of any normal person. Restricted diet may also increase the probability of seeing after-images just as fatigue does. It is a temporary fatigue of the retina and not an inflammatory process as in the case of snow blindness.

The absence of rickets in a region where children are almost universally undernourished is interesting, especially where syphilis has not existed until very recently and is still rare. This suggests the importance of chronic infection, especially syphilis, as a predisposing prenatal factor in the etiology of rickets.

The increased susceptibility to tuberculosis in the absence of protective substances in the food is very striking, and appears to be one of the most important etiological factors in that disease.

Dec. 6-9, American Society of Mechanical Engineers, 29 West 39th St., New York City.

Dec. 7-9, Radiological Society of North America, Chicago.

Dec. 9-10, Western Surgical Association, St. Louis, Mo.

Dec. 10-11, Medical Association of Porto Rico, San Juan.

Dec. 13-15, Southern Surgical Association, Pinehurst, N. C.

Dec. 27, Virginia Conference, Health Workers, College Hall, Richmond, Va.

Dec. 27-29, Society of American Bacteriologists, Philadelphia.

Dec. 27-29, American Statistical Association, William Penn Hotel, Pittsburgh, Pa.

Dec. 27-30, American Sociological Society, Fort Pitt Hotel, Pittsburgh, Pa.

Dec. 27-31, American Association for Advancement of Science, University of Toronto, Toronto, Canada.

Dec. 28-29, American Association for Labor Legislation, Pittsburgh, Pa.

Dec. 28-30, American Federation of Biological Societies, Yale University, New Haven, Conn.

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# FINDING TUBERCULOSIS THROUGH SURVEY AND CLINICS

M. J. FINE, M. D.

*Director Tuberculosis Bureau, Department of Health,  
Newark, N. J.*

Read before the N. J. Tuberculosis League at Lakewood, N. J., October 29, 1929.

FIRST of all let me say that we are proud of the fact that the city of Newark last year ranked first in the number of reported tuberculosis cases in proportion to the population. This was not due to the fact that the death rate was higher or that there were a greater number of cases in our city, but simply due to the hearty coöperation of physicians and other agencies with the Department of Health. The response to publicity and propaganda carried on by the health department in which repeated chest examinations were advocated, gave our clinics unusual opportunity to discover cases that would not have otherwise come under the supervision of the physician.

However, I still believe that there are a large number of cases that can be found in congested localities of our city by means of health surveys by visiting nurses and physicians, as well as through clinics.

For example:—Two years ago we conducted a survey on a small scale in a thickly populated section of the city and as a result it was found that in 42 tenement houses in one block there existed 23 active tuberculosis cases that were not known to the health authorities. If not for this survey, these cases would not have come under medical supervision. Of these, the majority were sent to various sanatoria and the families of the patients have from time to time been examined as routine follow-up work.

Last year a more elaborate ward survey was made; the nurses of the Department of Health having definite

streets assigned to them in the district; a thorough house to house canvass was conducted; every person found to have a cough of any description whether bronchial, asthmatic or otherwise was noted and questioned. Nurses subsequently followed up these suspicious cases by frequent visits. Those whose coughs soon disappeared were dropped from the list; but coughs that persisted and appeared chronic were advised to visit our clinics or requested to produce a certificate from a physician stating that they were free from tuberculosis. As a result of this procedure many new cases were discovered. The result as follows:

## FOURTEENTH WARD

Population 40,000

Colds and Coughs.....	108
Bronchitis .....	26
Asthma .....	8
Suspected T. B.....	22

There is no question in our minds that if all cases of tuberculosis were recognized early and were brought under proper medical care, tuberculosis could be prevented and in the near future be eliminated entirely from the community. The only way that this can be accomplished is by repeated examination of the entire population by physicians well trained in the diagnosis of this disease.

We must train the people so that they will willingly present themselves for examination to physicians or clinics. This can be done by means of educational publicity and proper legislation. In the meantime we must seize every opportunity that is given us to examine portions of the population.

Our city has a recreation camp for

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children at Avon-by-the-Sea, where the little ones of the city are sent for two weeks' vacation each summer. Formerly the children before leaving for camp were examined for acute diseases, scarlet fever, measles, whooping cough and diphtheria. This year I requested the city authorities to send all of the 1,400 who applied for admission to the camp to our clinics for examination of the chest. As a result many active and suspicious cases were discovered. None of the children, however, except those needing immediate sanatorium treatment were prevented from going to camp. Upon their return to the city, the suspicious and incipient cases were brought to the clinics for re-examination. Some suspicious cases were found to have cleared up from all symptoms, while in those cases where improvement had not taken place, steps were taken to put them under the supervision of the tuberculosis division and proper disposition made as to their treatment, care and future welfare.

It is curious that many of these cases had been attending school without their physical condition being known to their parents or the school authorities. In many instances parents were shocked and surprised when told of the condition of their child, telling the physician that the child had never coughed, disregarding and not noticing that the child was at that very moment coughing in the clinic room.

Total examined.....	1,650
Total suspected tuberculosis cases....	132
Negative .....	67
Positive .....	12
Remain to be re-examined.....	55

About 60 children have failed to return to re-examination.

As physician of the Juvenile Court of Essex County, I have had the unusual opportunity during the past two

years of examining more than 2,000 children ranging in age from 6 to 16 years. My findings were as follows:

Referred to Glen Gardner Clinic..	109
Examined .....	43
Accepted .....	22
Rejected .....	11
Waiting Admission.....	3

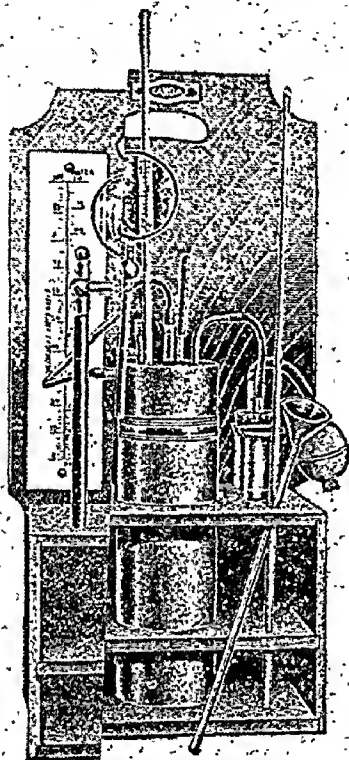
Taken care of by other institutions:	
City Home.....	4
State Home .....	2
Referred to Orange Board of Health .....	1
West home and reported and are under observation .....	56
Left the state.....	10

Recently, by the direction of the Health Officer, a physical examination of all the food handlers in our city was inaugurated and examination of their chests was carried out through our Division. To date approximately 1,400 employees of food handling establishments have been examined and 20 active cases of tuberculosis discovered. It is perhaps, needless to state that these persons are no longer permitted to handle food. The majority have been sent to sanatoria and other employment found for the remainder.

In conclusion I would say that 112 cases have been discovered that were it not for our system of surveys and clinics, these unfortunates would be going about in the city freely, spreading and communicating the disease to others; endangering themselves and the rest of the community. If we utilize every effort to discover all existing cases and help to educate the community to a higher standard of living, we shall at least be getting somewhere in this true National problem of eradicating disease that takes so great a toll of many young and useful citizens.

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# REPORTING COMMUNICABLE DISEASES—A PHYSICIAN'S POINT OF VIEW

CARL E. MCCOMBS, M. D.,  
Consulting Director, *Valeria Home*,  
New York City.

Prevention of communicable disease is the fundamental reason for public health service. If administration fails here it can not be successful elsewhere. Efficiency of administration depends upon prompt knowledge of presence of disease. Since reporting must be done by physicians they are often blamed, but existing systems are at times inconvenient for them. The author suggests new procedures more convenient for physicians.

NO ARGUMENT is needed to convince the health officer or health worker that the report of communicable disease is the weakest link in the chain of communicable disease control, but the following quotation from the New York State Health Department's "Health News" (September, 1920) suggests the need for a continued, constructive program on the part of health authorities to make reporting more complete:

"A recent comparison of deaths from communicable diseases outside of New York City shows an average of 52% unreported to health authorities, the figures varying from 20% for diphtheria to as high as 84% for puerperal septicæmia. If these be the facts for fatal cases, what then must be the state of affairs in regard to the less serious ones which are much more likely to spread infection."

If this situation is admitted by the health authorities of New York State where health service is so well organized and will directed, where facilities for accurate diagnosis are readily available to physicians and where education regarding communicable diseases has been carried into the most remote communities of the state, what must it be in other states less fortunate than New York?

Although there is nothing really new in the suggestions which follow, it is perhaps worth while to give greater em-

phasis to certain phases of this problem, which in the development of local health service to meet new demands have been somewhat neglected. Briefly stated, the success of a campaign to improve the reporting of disease seems to depend on the following measures:

1. Making reporting easy for physicians and others.
2. Furnishing physicians with prompt and efficient laboratory service.
3. Making prompt investigation and taking intelligent action on reports when made.
4. Conducting continuously a thorough-going campaign for the education of those responsible for reporting.
5. Enforcing the law when practicable.
6. Checking all reports of death from communicable diseases against the register of reported cases.
7. Eliminating from the list of reportable diseases those over which the health authorities do not actually exercise supervision.

The first consideration, and perhaps the most important, is making reporting easy. As one studies reporting methods, he finds more often than not that, instead of trying to make reporting easy for physicians and others, health authorities have apparently tried to make it hard by requiring information from them which the health authorities ought to obtain for themselves, and by requiring a great deal of information which is not used at all, or if used, not properly used.



I can do no better than to quote on this point Dr. Hibbert W. Hill, whose name is familiar to all readers of the JOURNAL:

"A health department should look upon the report of the physician as merely a starting point. The health department should get reports of disease from physicians as promptly as possible, and should accept a phone message in preference to a written report, because the phone message is more prompt. The health department should not ask a physician to answer a thousand fool questions on the report about the epidemiology of the case. The physician can't and won't answer such questions; or if he does, he will answer them wrong. All you want from the physician is the patient's name and address so that you can go to the house. I believe that health departments should not insist on a diagnosis, but simply have the physician report that there is a case of infection at such or such address; that is quite sufficient, or ought to be for any well-equipped health department. It ought then to have its machinery so developed that almost instantly an inspector is on the spot. The inspector should find out for himself what really is the matter and take proper steps."\*

As Dr. Hill points out thus tersely, one way to improve reporting is to organize the health department in such a way that the investigation shall be made by the health department and not by the physician.

This is really a vital issue. Physicians are mighty busy people as a rule and the demands upon their time in the care of their private patients must be met first. The average physician is called upon daily to give his time and energy to a hundred and one things which add little to the development of his private practice but much to his work. Among the most irritating of his duties is that of making out records and reports of one kind and another, not only those which the law requires of him but also those which health authorities and private health and welfare agencies request. If something can be done to reduce the amount of unnecessary record keeping and reporting that physicians have to do, it is certain that they will respond with greater enthusiasm in doing those things

which are really essential. If physicians are called upon to report only the name and address of a suspected case of communicable disease and are encouraged to use the telephone for this purpose, there will be an improvement in reporting—depend on it.

But the physician is not the only one responsible for the incompleteness of reporting. Commonly under the law, householders, institutional heads, teachers and others are required to report disease. They don't do it because they have not been taught to do so and because reporting has not been made easy for them. If reporting could be made easy as has been suggested, and a thorough campaign of education conducted among citizens generally, it is probable that the percentage of "missed" cases could be very considerably reduced. The majority of these cases are not seen by a physician, but some responsible persons see some that physicians do not see and someone's responsibility for reporting is ordinarily under the law as great as the physician's. It is possible that if citizens were informed of this fact and of the fact that health authorities welcome reports from them by telephone, anonymously or otherwise, health authorities might be put to the trouble of making some unnecessary investigations, but the gain in finding otherwise unreported cases would more than offset the loss of making a few unnecessary investigations.

The diagnostic laboratory is, of course, indispensable. It should be provided wherever possible and its use encouraged. To promote reporting, the laboratory report of a specimen sent in by a physician should be accepted as his report and no other report should be required of him. But the laboratory must be prepared to render service to the physician in return. The physician who sends in a diphtheria culture and then has to wait two or three

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\*From an address given by Dr. Hill before the students of a course in public health administration conducted jointly by the Bureau of Municipal Research, New York, and the Public Health Committee of the New York Academy of Medicine, May, 1919.

days for a report on it, in the meantime keeping himself, the patient and the family on the anxious seat, will often find it more convenient to send his specimens to a private laboratory which will serve him better. This is not at all uncommon practice among physicians in large cities—and there is a reason. Of course, the net result of this is that the health department loses, because in such cases it does not get the report of the disease or suspected disease until the private laboratory has made its report to the physician.

The handling in the health department of the abbreviated report of disease suggested is most important, since under this plan, the report would in most cases come over the telephone. This means that there should be an intelligent, competent clerk to receive and register reports by telephone or otherwise. One objection raised by health officers to telephone reporting is that it is often difficult to fix the responsibility of a physician for failure to report when there is no written record made and certified to by him. This is true, but the fault is perhaps more often that of the clerk receiving the telephone communication than that of the physician. The correction of this defect is, however, an administrative detail.

The next important procedure for improving reporting should be the responsibility of the health department alone—namely, the prompt investigation of the case by an intelligent, tactful investigator and prompt and efficient action by the health officer and his assistants. If an investigation is to be effective in determining control of the disease, it must be immediate, and if it is immediate, it will please the one who reported the case. Every physician has experienced the annoyance of reporting a case of communicable disease and then waiting for twenty-four hours or more for action by the health department. Prompt action will please physicians because it will relieve them of unpleasant duties and sometimes

unpleasant arguments with the patient and family. To get prompt action requires that as soon as a report is received, a competent inspector shall be available to whom the report may be referred for or immediate investigation. The inspector's office should be in the saddle or better still, in an automobile. When his investigation is made, such action as may be necessary can be taken on the spot and a complete report made to his superior.

We have already said something about the educational campaign, but it may be well to be more specific about this. The educational effort should, it is believed, be directed primarily at the householder and not at the physician. Perhaps the physician needs education too, but certainly he ought to know what his duty is by this time. Keep him informed, of course, but without too much preaching. If there is anything that makes the average physician tired it is the effort of non-physicians to teach him his business. So if any education of physicians is attempted, it should be in the form of direct communication from the health officer who, if he is a physician himself, will appreciate the physician's point of view. For the education of the public, and physicians too, the printed word is good, but the personal interview is better. One of the best mediums for the use of the printed word is the daily press, and the press can be used if the subject is one having news value. There is news value in a story that the local health department is about to start a drive against communicable disease; that a new system of reporting and investigation is going to be adopted which will cause as little inconvenience to citizens as possible, etc. The same ideas can be expressed in printed circulars and distributed to homes by school children or inspectors, nurses and others on their daily rounds. But the mere leaving of a circular in the home is not enough—and every home visit by the inspector or nurse should be

regarded and used as an educational opportunity. This kind of education is after all the most valuable.

Law enforcement to improve reporting is a neglected weapon. Most health officers have adopted the view that "more flies can be caught with molasses than with vinegar." We do not quarrel with this point of view, but there is something to be said in favor of taking advantage of the law in cases of deliberate and willful failure to report. The physician who neglects to report occasionally may, perhaps, be excused, but the one who reports only by a death certificate ought not to be always excused. The health officer should select his victim with care when he resorts to the law, and the case must be so worked up that there will be at least an even chance of getting a verdict for the health department. Threatening physicians does little except to make them wrathful, but no good physician will quarrel with a health officer, surely, for trying to enforce reasonably a law which he has sworn to enforce, especially if that law had been persistently violated. As regards law enforcement, it might be well for the health officer to secure the backing of his local medical association and fortify himself with a statement of its position with regard to law enforcement, to what extent and when the law should be invoked and how far the medical society is willing to go with him along the legal route.

The checking of all deaths for communicable diseases against the register of reported cases is a matter of administrative routine, and ought not to require emphasis. But there are scores of health departments in which this is never attempted. Action after a death report is too late in the day, of course, to help the particular case, but it may not be too late to prevent disease of others.

Certainly it isn't too late to check up the physician or other person who neglected to report at the proper time. For statistical purposes, too, full information is valuable and should be obtained in every case.

Finally, to improve reporting health authorities ought not to require reports of diseases about which they intend to do nothing. If the health department doesn't intend to investigate a case of lobar pneumonia or puerperal septicæmia for example, and doesn't intend to use its information about these diseases to establish control of them, why ask physicians to waste time in reporting them? The health laws of many states and cities include in their lists of reportable disease many which are only occasionally reported and to which the health authorities pay no attention even when reported. The physician or other person who learns that no use is made of his report of one disease is less likely to report others, and the statistics of diseases for which reporting is required by law but not required in fact are worthless because such reports as are received represent only a very small percentage of existing cases.

A public health service built on an inefficient system of communicable disease control will be inefficient in every department of its service. It seems to the writer that it is time to get down to brass tacks in the development of public health administration and put more emphasis and more effort on the attack against communicable disease. As in football, quoting a famous and successful football coach, "The best defense is a strong offense." The offensive must start with improved reporting of disease—and though 100% reporting may be too much to expect, certainly 50% reporting is little to be proud of.

**Are you planning to take a friend when you go to the Fiftieth Annual Meeting of the A. P. H. A. in New York City, November 14-18, 1921, and nominate him for membership?**

# EPIDEMIOLOGICAL STUDY OF AN ENDEMIC FOCUS OF LEPROSY

MARK F. BOYD,

*Passed Assistant Surgeon (Reserve), U. S. Public Health Service,  
Professor of Bacteriology and Preventive Medicine, Medical Department,  
University of Texas,  
Galveston, Texas.*

and

WARREN F. FOX,

*Passed Assistant Surgeon, U. S. Public Health Service, M. O., in charge of  
Quarantine Section, Galveston, Texas.  
Galveston, Texas.*

Read before Laboratory Section, American Public Health Association, at San Francisco, Cal.,  
Sept. 16, 1920.

In this focus the authors found the majority of cases to be among native-born children of German-born parents, males preponderating, and largely infected in the locality. It is uncertain whether the infected area is increasing. Cases are grouped in distinct foci and insect transmission is inadequate to explain the grouping while contact transfer is not wholly satisfactory.

HAVING learned of the prevalence of leprosy in the area under consideration to a degree unusual in the United States, it appeared that all available data pertaining thereto should be secured and made a matter of record. This study was therefore undertaken in an unofficial capacity, a circumstance which possibly has not aided in the collection of information. An epidemiological investigation of a chronic disease of long duration such as leprosy is a much more difficult matter than the collection of similar data for an acute infection for reasons that are obvious. The records of the health department are very meagre, and only relate to the reports of cases within recent years. So far as possible our information was secured from the patient himself, and where the patient himself was not available, for one reason or another, we are largely indebted to the practicing physicians of the city for our information. To them are due our hearty thanks.

**Endemic Area.**—The endemic area is a moderate sized, subtropical city located at the eastern end of a long, narrow island in the Gulf of Mexico, two or more miles distant from the mainland. Industrially the city is a seaport of considerable importance, while manufacturing is of relatively minor importance. Demographically the city differs from most southern cities in the rather small proportion of negroes and for the large proportion of foreign born whites, or native whites of foreign born parentage composing the population.

**Known Incidence of Leprosy.**—The site of the city has been settled about one hundred years, but the information we have been able to collect regarding the incidence of leprosy does not cover a period of over thirty years. This not to be taken as a suggestion that leprosy was unknown prior to that time, but is due to the absence of any official data regarding its early occurrence.

The earliest case of leprosy of which

we have been able to learn was recognized in 1886, and shortly thereafter permanently left the area. It was apparently of local origin and is not included in our series. In 1889 Dock<sup>1</sup> reported two cases of local origin, which are included in our series. In a personal communication Dock states that he made at the time a "pretty thorough survey of the Mexican and Chinese quarters, but did not find any other cases." Only one Chinese case of leprosy has ever been known here, and of our series only two are Mexican. In addition to the 45 cases of our series, we have learned of 25 additional cases of leprosy that have existed in this focus, but owing to the lapse of years and the absence of recorded data, have been unable to secure many particulars and have accordingly omitted these cases.

Our series of 45 cases has occurred during the past thirty years. We have divided these cases into three groups as follows:

Class A: Living cases at present residing in the area..... 26

Class B: Cases presumably alive, but who have removed from the area. 6

Class C: Cases known to be dead.. 13

We were able to secure the most detailed and complete information concerning the cases of Class A. From an analysis of the data we have collected we present the following tables of summarization:

TABLE I

Local or Imported Origin of the Cases

	Class A	Class B	Class C	Total
Imported	3	2	0	5
Local cases	23	1	12	36
Unknown origin	0	3	1	4

The imported cases will be omitted from many of the subsequent tables. Where such is the case, the table heading will indicate this by (40).

The cases have the following incidence:

TABLE II.

Racial incidence of leprosy cases (40)

	Class A	Class B	Class C	Total
Whites of:				
a. Native born parentage	6 (26%)	1	2	9
b. Foreign born or mixed parentage	11 (48%)	0	5	16
c. Foreign born	1 (4%)	0	3	4
Negro	5 (22%)	0	2	7
Other races	0	0	0	0
Unknown	0	3	1	4

TABLE III.

Sex incidence of leprosy cases (40)

	Class A	Class B	Class C	Total
Male	13	2	10	25
Female	10	2	3	15

Their age at the onset of the disease was as follows:

TABLE IV.

Age at onset of leprosy (40)

	Class A	Class B	Class C	Total
From 1 to 10 years	1	1	0	2
" 11 " 20 "	8	0	2	10
" 21 " 30 "	2	0	0	2
" 31 " 40 "	5	0	3	8
" 41 " 50 "	2	1	0	3
" 51 " 60 "	3	0	2	5
Over 61 years	0	0	2	2
Age unknown	2	2	4	8

These cases had resided within this area for the following named periods before the onsets of their illnesses:

TABLE V.

Length of residence in focus before onset (40)

	Class A	Class B	Class C	Total
From 1 to 5 years	2	0	1	3
" 6 " 10 "	1	0	0	1
" 11 " 15 "	8	0	2	10
" 16 " 20 "	5	1	4	10
" 21 " 30 "	2	0	0	2
" 31 " 40 "	2	0	0	2
" 41 " 50 "	0	0	1	1
" 51 and more	1	0	1	2
Length of residence not known	2	3	4	9

From Table IV it would appear that especial susceptibility is not observed at any particular age period. In order to ascertain if length of residence within this area was an influencing factor, rather than age in determining the onset, we divided our cases into two groups, according to their birth place. The first group comprises those born within this area and the second group those born elsewhere. The individuals comprised within each of these groups were then separately classified according to length of residence and age at onset. This data is presented in Table VI. As would be expected, there is, among those born locally, a close correlation between the length of residence and the date of onset, the maximum occurring during the second decade of life and residence. On the other hand, among those born elsewhere this correlation is not found. It is to be noted, however, that the maximum number of onsets in this group have occurred during the second decade of residence, as among those locally born, while the ages of onset are among the later periods of life. It therefore appears proper to conclude that length of residence within this area, rather than age, is a determining factor in influencing the onset.

TABLE VI.

Relation of age and residence to onset (40)

		Cases born in area		Cases born elsewhere	
		Length of residence	Age at onset	Length of residence	Age at onset
From	1 to 10 years	2	1	2	1
"	11 " 20 "	9	9	11	1
"	21 " 30 "	1	2	1	0
"	31 " 40 "	2	2	0	6
"	51 " 50 "	0	0	1	3
"	51 and over	1	1	1	6
Unknown		3	3	6	5

Note—Apparent discrepancies in first

and second columns are due to patients who temporarily moved away.

These patients were, or are engaged at the present, in the following occupations:

TABLE VII.

Occupations of leprous patients (45)

	Class A	Class B	Class C	Total
Real estate agent	0	0	1	1
School child	2	0	0	2
Locomotive engineer	1	0	0	1
Laborer	10	0	4	14
Retired tailor	1	0	0	1
Delivery boy	1	0	0	1
Laundry worker	0	0	1	1
House worker	7	1	1	9
Seamstress	1	0	0	1
Sailor	0	1	0	1
Cashier	1	0	0	1
At home	1	0	0	1
Fireman	1	0	0	1
Stenographer	0	1	0	1
Harness maker	0	0	1	1
Hospital orderly	0	1	0	1
Not known	0	2	5	7

Multiple or single cases have occurred as follows:

TABLE VIII.

Number of cases in invaded households (45)

	Class A	Class B	Class C	Total
Households with 1 case	19	6	7	32
Households with 2 cases	2	0	3	5
Households with 3 cases	1	0	0	1
Family with 4 cases (incl. above)	1	0	0	1

Clinically these cases may be grouped as follows:

TABLE IX.

Frequency of different clinical types (45)

	Class A	Class B	Class C	Total
Tuberculous	11	2	4	17
Anesthetic	5	1	0	6
Mixed	10	2	9	21
Not known	0	1	0	1
Ulcerative (incl. in mixed)	1	0	0	1

These cases have been of the following duration:



TABLE X.

Duration of illness in leprosy (45)					
	Class A	Class B	Class C	Total	
Less than 1 year	2	0	0	2	
From 1 to 2 years	2	0	1	3	
3 "	5	0	0	5	
4 "	3	0	2	5	
5 "	3	0	1	4	
6 "	1	0	0	1	
7 "	3	0	1	4	
8 "	2	0	1	3	
9 "	0	2	0	2	
10 "	2	0	0	2	
15 "	2	0	0	2	
17 "	0	0	1	1	
24 "	0	0	1	1	
Not known	1	4	5	10	

In considering the facts presented by this series of tables, the following stand out:

(1) The majority of known lepers within this city have acquired infection locally.

(2) A comparison of the racial incidence of cases with the current distribution of the population is at the time of this writing impossible, since the results of the 1920 census are not yet available. An accurate estimate for 1920 furthermore cannot be made. Accordingly we shall have to employ the 1910 population composition.

TABLE XI.

Racial incidence of leprosy compared with racial composition of the population.

	Living lepers, 1920	Proportion in population, 1910, by percentage
White		
Native born parentage	26%	34.2%
Native born of foreign or mixed parentage	48%	27.3%
Foreign born	4%	16.7%
Negro	22%	21.7%

Thus it is apparent that cases have occurred among whites and negroes only in proportion to their distribution in the population of this area. On the other hand, it is to be noted that the cases are more numerous among those whites of foreign-born parentage, than among na-

tive-born whites. This incidence among those of German parentage seems to be proportionately higher than among those of other descent. Thus in 1910 the native-born whites of foreign-born German parents were 2,365 of 6% of the total population, while 35% of the present cases are among their number. The significance of this not clear. It may indicate greater susceptibility among those of German ancestry, or the strain of leprosy prevalent here may be of Teutonic origin.

(3) We have 25 male and 15 female lepers.

(4) Only one of our cases developed the disease before the age of ten, yet the second decade of life contains the onsets of a larger number of cases than any subsequent age period, none of which is exempt.

(5) For the most part, infection only appears to develop after a protracted residence in this area. Only two cases are known to have developed the disease under five years' residence. The most of the cases have appeared following a period of residence of from eleven to twenty years. It appears that the length of residence is a more important factor in determining the age of onset than the age itself.

(6) Among males the greatest incidence is among laborers. The occupational incidence among females is not suggestive. In general the occupational incidence coincides with the social status of the cases, that is, they are most prevalent among those in the humbler walks of life.

(7) The disease in this focus tends to run a chronic course, characteristic of its occurrence elsewhere. The tuberculous type is more common than the anesthetic, while the mixed is more frequent than either of the others. Only one of the present cases has any ulcerations.

**Annual Incidence of Leprosy.**—The annual incidence of leprosy within re-

cent years is shown in the following table:

TABLE XII.

Year	Population, mid-year est.	Onset	Rate per 100,000	Cases reported	Death rate per 100,000
1911	37,851	0	0	1	0
1912	38,597	2	5.2	2	2.6
1913	39,343	2	5.1	2	2.5
1914	40,089	1	2.5	0	2.5
1915	40,835	1	2.4	0	0
1916	41,581	4	9.6	0	4.8
1917	42,327	4	9.4	0	0
1918	43,073	2	4.7	8	0
1919	43,819	1	2.3	3	4.5
1920 (5/1)	44,565	1	2.2	1	2.2

While our information concerning the incidence of leprosy prior to 1910 is meagre, so that in all probability the majority of cases are unrecorded, yet it is uncertain that the incidence of the disease has increased materially during the last decade. To give an idea of the recent comparative incidence of leprosy in this and other foci of the disease, a small table is appended:

TABLE XIII.

	No. cases known living in focus	Cases reported during year
Local focus (1918)		
(own data)	26	8
*State of Texas (1918)	18	0
*New York City (1918)	23	2
*San Francisco (1918)	19	7
*State of Minn. (1918)	10	2
*United States (1918) (continental)	209	63

\*Data from Rep. Surg. Gen., U. S. P. H. S., 1919.

From our study we feel confident that there are still a number of unrecognized cases of leprosy living in this focus, yet the foregoing comparison calls attention to the inadequacy of our knowledge of the incidence of the disease in the United States as a whole, particularly when we note the number reported from the entire state of Texas compared with the number in this focus during the same

year. Even considering the notorious inadequacy of our knowledge of the prevalence of leprosy in the United States, it seems possible that the actual incidence of the disease in this focus is greater than in most, if not all other of those areas in the United States where the disease is known to be endemic.

**Geographical Distribution Over the Endemic Area.**—The city under consideration is divided into thirteen precincts. The density of population in each precinct and the incidence of leprosy therein are shown in the accompanying table:

TABLE XIV.

Precinct	Population 1910	Density per acre	Lepers population, 1920	Lepers originating in each area	Cases of German descent
1	2,943	22	1	6	3
2	2,810	31	1	2	0
3	2,425	23	1	1	0
4	2,505	24	3	1	2
5	3,228	31	0	1	0
6	4,553	6	8	6	4
7	3,960	2	5	7	1
7½	2,615	12	1	2	0
8	2,609	13	0	0	0
9	2,468	12	0	0	0
10	2,515	17	4	6	4
11	2,352	16	0	0	0
12	1,998	19	2	3	0

It is to be noted that in three precincts we have no record of either past or present cases of leprosy originating therein. It is also to be noted that the distribution of these cases is not proportional to the density of population, and that we can further distinguish several well-defined foci of infection, where a radius of two or three blocks will inscribe all the cases in that area. Thus we can note one such focus in the first and second precincts, another in the sixth, one which lies in both the sixth and seventh precincts, one in the tenth precinct and another in the twelfth precinct. It is also to be noted that the focus in the first and second precincts has very nearly become ex-

tinct, the majority of the cases having either died or moved away, while those still remaining are of several years' duration. One focus which lies in both the sixth and seventh precincts appears quiescent, for no new cases have been reported within this area for several years. The westerly focus in the sixth precinct, the focus in the tenth and the focus in the twelfth precincts appear to be active at present, and have contributed the cases recognized within the last two years.

Referring to the high incidence of the disease among those of German birth or descent and noting the place of their residence, it is found that most of these German cases are concentrated in the first, sixth and tenth precincts. This suggests that there may have existed a degree of social contact among these cases, despite some negative histories of contact given to us in reply to interrogations.

#### Data Relating to Route of Infection.

—We have already stated that of the households in which at present are living cases, 19 households have one case; two households, two cases, and one household, three cases. In addition, surveying all of the past or present cases known to us, we were able to secure the following data relative to known association with a case of leprosy prior to the onset.

TABLE XV.

History of contact with lepers prior to onset (45)				
Known association				
with a leper at:	Class A	Class B	Class C	Total
Home	7	0	1	8
Elsewhere	6	1	3	10
Contact not known	10	1	1	12
No data secured	3	4	8	15

In thirty cases we were able to elicit definite information upon this point. Eighteen of these or 60% gave a history of such association prior to the development of their own illness.

Contact with pre-existing cases of lep-

rosy took place under the following circumstances:

Case 5 conducted a rooming and boarding house in which case 30 lived for three months, one year prior to the onset of case 5.

Case 8 went on frequent fishing trips with case 25.

Case 9 slept with case 48 for a period of two months, ten years prior to her onset.

Case 10 associated with a leprous brother-in-law and niece in Mexico.

Case 11 was in contact with her mother, case 43, whose illness was diagnosed as pellagra.

Case 12, as a boy, played with cases 37 and 46.

Case 13, contact with mother, case 14.

Case 14, contact with husband.

Case 15, contact with mother, case 11. In this family there are three generations of leprosy cases.

Case 17 and 18 are two brothers whose onsets were practically simultaneous. Contact with mother, case 19.

Case 21. A grand-daughter of case 19 and niece of cases 17 and 18. This is a second instance of three generations of leprosy patients in one family.

Case 25 was, as a child, associated with cases 17 and 18.

Case 40 is a brother of case 48.

Case 41 was in contact with his mother, who probably contracted infection while living in Mexico.

Case 46, slept with his older brother, case 37.

It might be possible that the tuberculous and anesthetic types of leprosy are due to separate strains of the bacillus, each having a different selective localization in the body. If this is the case, it might also be possible that the histories of contact would show that the strain breeds true, i. e., tuberculous cases of leprosy give rise to tuberculous cases, etc., providing the known leprous asso-

ciates were the actual source from whom infection was secured.

Data bearing upon this point are presented in the following table:

command our attention in this connection, namely, *Musca domestica*, *Stegomyia fasciata* and *Cimex lectularius*.

That leprosy bacilli can possibly be

TABLE XVI

Type of case with whom living cases were in contact (26)

Living cases giving a history of contact		Living cases not giving a history of contact	
Clinical type		Contact known with:	
1. Tuberculous			
4 cases		4 tuberculous lepers	7 cases
2. Anesthetic			
2 cases		1 mixed leper	3 cases
		1 anesthetic leper	
3. Mixed			
7 cases		3 tuberculous lepers	3 cases
		1 anesthetic leper	
		1 mixed leper	
		1 type unknown	
		1 to both simple types.	

From this data it would appear that if these cases do owe their origin to contact transmission from cases with whom they are known to have been in contact, the clinical types of leprosy are possibly due to the selective preference of different strains of leprosy for either the subcutaneous or nervous tissues, and which tend to maintain this behavior on transfer.

In view of the inadequacy of our data to explain entirely the grouping of the cases into several small foci on the basis of contact transfer, it may be worth while to consider other possible means of transfer. The only other routes of transmission with which we are familiar that would produce a similar epidemiological picture are insects. From the short radius of these foci it would appear (1) that the assumed insect has a very narrow radius of activity; and (2) from the relatively few cases that develop in a focus, the insect is not a very efficient means for the conveyance of the organisms. So far as the local insect fauna is concerned, there are three species that

conveyed by insects, especially those which suck blood, would appear possible from the following facts:

(1) The leprosy bacilli are present in the sub-cutaneous tissues of patients at a depth where they could be reached by the proboscis of a blood-sucking insect, or are present in the discharge from ulcerations.

(2) The localization of our cases is suggestive of the activity of known species having a narrow radius of activity. The three species mentioned tend to have such a narrow radius.

Against this view may be advanced the following facts:

(1) The known infections transmitted through the activity of these insects, tend to spread more rapidly with a higher incidence than leprosy, even making allowance for the fact that the former are acute infections while leprosy is chronic.

(2) The known observations upon the presence of leprosy bacilli in insects have given very few positive results. Currie<sup>2</sup> has reviewed the data available upon this point up to 1910 and submitted

some negative data secured by himself regarding mosquitoes. Brinckerhoff<sup>3</sup>, Leboeuf<sup>5</sup>, and Noc<sup>6</sup> report largely negative observation on mosquitoes, while Thomson<sup>4</sup>, Leboeuf<sup>5</sup>, and Skelton and Parham<sup>7</sup>, report negative results with bed bugs. McCoy and Clegg<sup>8</sup> report positive findings from two head lice captured on a leper. Leboeuf<sup>9</sup> found 19 of 23 house flies fed upon ulcers to be positive, while Honei and Parker<sup>10</sup> found lepra bacilli in both the house fly and the stable fly. It is, therefore, apparent that the idea of insect transmission has little evidence to support it, with the exception of that concerning the house fly. We have previously noted that only one of our present cases is ulcerative. We are, therefore, forced to conclude that the idea of insect transmission is inadequate to explain the peculiar grouping of our cases.

**Rat Leprosy.**—In this connection we made some effort to detect rat leprosy in the course of the examination of some 23,000 rats for plague. Only seven leprous rats were identified, as proven by the detection of acid fast bacilli in smears. These were all Norways. In the course of the search 14,000 Norway rats were examined. Special effort to secure additional leprous rats from these areas was made without success.

**Consumption of Fish.**—Some years ago considerable attention was drawn to the consumption of fish in relation to the incidence of leprosy. We secured the following data regarding the consumption of fish from our series of cases:

TABLE XVII.

Consumption of Fish by Leprous Patients (45)	
Fish frequently eaten	11
Fish occasionally eaten	1
Fish rarely eaten	9
Fish never eaten	2
No data	22

This does not appear to support the view that a fish diet bears any relationship to the development of the disease.

#### CONCLUSIONS

From the foregoing analysis of the

data we have collected we draw the following conclusions:

(1) The majority of the known cases of leprosy in this focus have acquired infection locally.

(2) There is apparently a greater incidence of the disease among those native-born of foreign-born German parents than among any other groups in the population.

(3) There is a preponderance of cases among males.

(4) More cases have developed during the second decade of life than in any other age period, though no age group appears to be immune.

(5) The length of residence within the area appears to be a more important factor than age in determining the onset. The majority of cases among those born elsewhere develop the disease during the second decade of residence.

(6) It is uncertain whether the incidence of the disease is undergoing any increase in the area.

(7) In proportion to the population of the area, there is probably a higher incidence of leprosy in this area than elsewhere in the continental United States.

(8) The cases within the area are grouped into several distinct foci.

(9) A major proportion give a history of contact or association with a case of leprosy prior to the onset of their own infection. Known contact transfer will not explain the origin of all the cases or of the peculiar grouping into foci of a narrow radius.

(10) The hypothesis of insect transmission is inadequate to explain the grouping of the cases. More likely contact with unrecognized cases or unrecognized contact with known lepers is responsible for the 40% of cases from whom a contact history was unobtainable.

In concluding we should call attention to the fact that absolutely no official con-

trol or supervision in any form, has ever been exercised over the cases of leprosy within this area.

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## SEASONAL VARIATION IN MULTIPLICATION RATE OF MICRO-ORGANISMS WITHIN THE BODY

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That the curve of typhoid incidence, the *B. coli* content of a polluted stream and the *B. coli* output of the observer follow the same seasonal variations is shown. There is apparently a variation in the biological equilibrium of the body and a changed rate of multiplication of organisms. There is opportunity here for interesting bacteriological investigation.

THE phenomenon of seasonal variation of disease has so long been familiar as to become axiomatic without need for further explanation. That some relation to the humors of the body existed, which were disturbed at different seasons, was sufficient theory to satisfy the common sense. Sanitary science has been fully engaged in tracing out the sources and modes of infection without investigating the susceptibility of the body to the infection. The startling suggestion by Dr. Charles E. North<sup>1</sup> in 1912 that the altered concentration of blood supply, following thermal changes, might give rise to differences in susceptibility of the tissues and probability of attack,

created much interest and opposition. The *a priori* hypothesis without experimental evidence merely offered a physiological interpretation of statistical observations.

While at Fishermans Island, Va., during the year 1914-15, the author had occasion experimentally to infect tanks with his own feces. Great difficulty was observed during the winter in obtaining sufficient numbers of *B. coli* to infect the tanks. The condition persisted for several months until the hot weather approached, when it became a simple matter to get large numbers of *B. coli*. This observation was sufficiently well established by its consistence to suggest that the number of *B. coli* in the intestine also

varied with the season, being more prevalent during the warm weather.

Upon suggesting this experimental observation as confirmation of the hypothesis that the condition of the body varied seasonally to Prof. E. B. Phelps, he became quite interested, because of having found a similar seasonal *B. coli* distribution curve in the waters of the St. Clair, the Detroit, Niagara and St. Lawrence rivers.<sup>2</sup> Since all of these rivers have a rapid uniform flow with a steady population, the cause of the distribution apparently arose from an actual variation in the number of *B. coli* which were introduced.

In order to obtain more accurate experimental data the author began in the spring of 1916 to determine the number of *B. coli* actually discharged by himself as an individual. These tests were conducted through the summer months until a change of detail made it impossible to continue the observations. Sufficient data had, however, been obtained in seven months (Table I) to prove that there was a distinct variation in the bacterial content of the intestine. When these results were compared with those obtained in the river studies, a striking similarity—both in time and degree—was evident. A paper entitled "The seasonal distribution of *B. coli* in a polluted stream" was presented by Prof. Phelps and the author at the meeting of the American Public Health Association in the Fall of 1916. This paper has never been published be-

cause the Hygienic Laboratory decided to carry out further researches to confirm the results. With the outbreak of the war, however, the work was abandoned and it does not appear likely that it will be continued. Since the experimental data seem worthy of notice, and the river data have already been published,<sup>2</sup> the results are presented here.

When the seasonal variation of the intestinal content of *B. coli* is plotted on the same relative scale as the seasonal distribution of *B. coli* in these rivers (Chart I), a striking similarity is at once

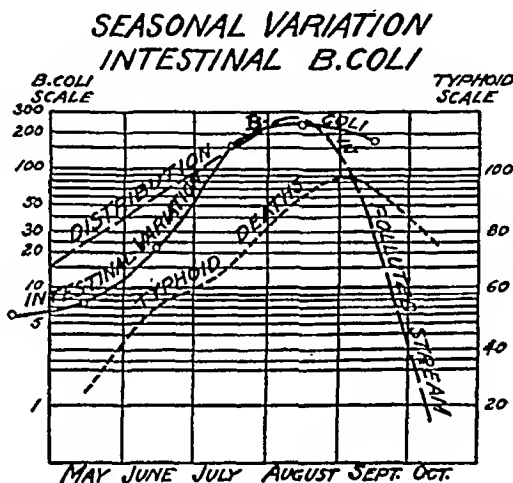


CHART I.

Showing relation between Seasonal Variation of intestinal *B. coli*, 1916. Seasonal Distribution of *B. coli* in St. Clair, Detroit, Niagara and St. Lawrence Rivers, 1913, and Seasonal Curve of Typhoid Deaths, Buffalo, 1906-14.

TABLE I.  
Seasonal Variation of Intestinal *B. Coli*.

1916 Month	Number of Samples	Grams per Day	B. Coli—Millions Per Gram			Relative No. B. Coli
			Maximum	Minimum	Mean*	
March .....	4	83	4.73	.479	1.57	12.0
April .....	4	125	2.65	.284	.813	6.24
May .....	7	97	1.02	.254	.944	7.24
June .....	6	89	7.95	.948	2.72	20.8
July .....	10	110	96.8	1.67	19.6	150.
August .....	15	108	265.	1.07	28.2	216.
September .....	8	99	900.	1.12	21.8	167.

\*Geometrical Mean.

observed, as also to the curve of typhoid deaths in Buffalo for the years 1906-1914. The remarkable degree to which these three independent curves are parallel cannot be attributed to mere chance. It must be admitted that the seasonal distribution of *B. coli* in the rivers is related to the similar seasonal variation of *B. coli* within the intestine. Moreover, the increase in typhoid fever at the same season must be assumed to have a distinct relation to the same conditions. It is not necessary to assume that the one is the cause of the other, for it is an equally probable hypothesis that they are both due to the same cause.

Inasmuch as the conditions of existence of both *B. coli* and *B. typhosus* are known to be closely allied, it seems very probable that the same condition of the digestive organs which lead to a multiplication of the former would also favor the multiplication of the latter. The experimental evidence, therefore, indicates in a striking manner the fact that there is a seasonal change in the physiological equilibrium of the body. Whether the real cause is given by North's hypothesis, or is due to some other condition in the body, is not determined.

Generalizing upon this experimental data and the inference which may be logically drawn from it, we may state that it furnishes experimental confirmation of the following principles:

1. There is a seasonal variation in the rate of multiplication of micro-organisms within the body.
2. This variation appears to be due to a seasonal variation in the biological equilibrium of the body.
3. The rate of multiplication of organisms within the body depends upon a susceptibility of the tissues, due to the physiological condition of the organs of the body.

Turning from a study of the sources and modes of infection to an inquiry into the susceptibility of the tissues of the body to infection, a promising field of bacteriological investigation is offered.

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**Free Milk for Students.**—A "more milk" campaign designed to reduce the number of under-nourished children in St. Louis schools has been instituted by the American Red Cross chapter there, following a study of conditions among pupils. A number of milk stations have been established in the various schools at the request of school officials who discovered a high rate of malnutrition among their students. The milk is served in half-pint bottles to the children at a cost of four cents a bottle. If the children are unable to afford this small sum they are given tickets which entitle them to a bottle of milk free of charge. More than 1,200 bottles are being distributed daily. Crackers are given with each bottle, rendering the nutritive value of this supplemental meal higher than it would be otherwise.—(J. A. T.)

**Dentists Want Representation in a Federal Health Department.**—"If a Cabinet position devoted to health is created, the dentists of America must see to it that dentistry is properly recognized. If the Secretary of Health is a physician, then the first assistant secretary must be a dentist. Dentistry should get busy and see that proper representation is given, otherwise we will be in the same position as the pharmacists—that is, on the anxious seat. The political power of the dental profession is very great and if dentistry is overlooked it will be due to lassitude. Hard luck pursues those who do not think ahead."—Editorial by R. P. McGee, M. D., D. D. S., *Oral Hygiene*, April, 1921. (J. A. T.)



# OFFICE SYSTEM IN PUBLIC HEALTH ADMINISTRATION

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Failure to locate papers in an office is a symptom of careless thinking, states this writer. If, as a health officer, you have not established efficient office methods and trained the personnel to see that these methods "carry on," perhaps such failure is due to the kind of thinking you have been doing.

"GENIUS," said Robert Louis Stevenson, "is the capacity for taking infinite pains." The good executive must be akin to the genius; for infinite pains is the price of adequate office system. In the office of a public health executive such system is especially vital. Time is saved by finding papers and facts at once, by having a force trained and willing to take responsibility, by stopping leaks, by avoiding wasteful friction and uncertainty, and by reducing the number of complaints. More than this, system makes possible quick decision and rapid action on the part of the whole force, and reduces to a minimum the danger of letting matters slip by unacted on. This improves morale in the office and wins the good will of the public. If in business such good will would mean money or credit, in public health administration it is a factor making for success.

Here is a question to which every health officer should give attention. Whether his office force number two or 200, his office methods will not build themselves. He should be a reader of business publications and their advertising sections, as they will be rich in ideas that he can apply to his own problems. He should be aware of the improvements which are constantly being made in office equipment and supplies. He will then realize that, to secure adequate office sys-

tem, there is needed, not an expert brought in from outside, but familiarity on his part with the systems in general use, applied common sense, and "infinite pains" to see that things started right do not go wrong.

In the hope of being of practical assistance to the health officer, this article reviews a few of the methods which have been found useful by actual experience in a particular office concerned in public health work. No originality is claimed for them; but in office management it is not originality, but effectiveness and applicability which count.

## TWO PRINCIPLES OF GOOD OFFICE MANAGEMENT

Two principles are fundamental to the system in this office:

1. The keeping of filing and index systems which will permit the executive *and each person under him* to find what they need without delay, and which will prevent matters from being lost to view and, therefore, either not acted on at the necessary time or unduly delayed. Papers should keep step while marching through an office. Failure to find papers *and to find them when needed* is a symptom of careless thinking on the part of some one in the office—frequently the executive.

2. The training of subordinates to assume all possible responsibility. The health officer can have good office management without sinking himself in it.

Considerate individual treatment and encouragement of the clerical force will give them an enthusiastic interest in what the executive is trying to accomplish. They will soon be capable of carrying on adequate office systems with a minimum of supervision. The great necessity is for the executive to be willing to delegate to them all that they can manage—even if the work is not performed quite so well as it would have been by himself—and to let them have the credit for what they do.

The essentials, then, are to establish efficient office methods and to train the personnel to take a keen interest in seeing that these methods "carry on." It is always to be remembered that, unless systems are as simple as possible, they will not be worth their weight.

#### VISUALIZING YOUR DUTIES

In only the smallest office can the executive keep in his mind all of the important matters which are in course of being acted on. He needs to have accessible an up-to-the-minute record of his duties. Moreover, there are a number of matters on which he hopes to act at some future date, but which he wants to keep continually in mind. If he puts these points on cards, he must go over them every day or two to refresh his memory, and as such matters generally have no logical arrangement, alphabetical or otherwise, he will have to finger over a number of cards every time he wishes to refer to a particular matter.

Why not a visible index record? In such indices the cards lie flat, one on top of another, usually in drawers, with a strip at the top or bottom of each card exposed or covered by transparent celluloid. On this exposed portion will go only a brief description of the activity—the "catch-words" which are used in the office in referring to it. When the edge of one card is lifted up, the whole surface of the succeeding card is brought into view, and additional entries can be made on it without difficulty. The cards

can either be arranged in different drawers or sections of the file by subject, or, if it is desirable to have the exact status of the matter evident at a glance, the cards can be arranged under headings such as "Not Acted on," "Pending," "Referred to Laboratory," "Held for Next Fiscal Year," or whatever the precise need of the office is. The cards are then transferred from section to section in accordance with the status of the matter. If, on the other hand, it is desirable to keep the subject arrangement and yet have the status appear at a glance, colored signals (tabs) can be used, a different color for each step taken. The tab can be pinned to the card, so that only a narrow strip of it will show, or, in the case of visible files with celluloid "inserts," the tab needs only to be slipped down between the celluloid and the card. Transparent signals can be used which will make it possible to see the legend on the card through the signal.

#### FILING CLERK KEEPS VISIBLE INDEX

In the office under discussion, a visible index record of important activities (primarily contemplated work) is kept by the filing clerk, who makes entries (1) from the correspondence when it first comes to the office, (2) from the correspondence as it goes to file, with replies attached, and (3) from "references" to other offices, as they come to the filing clerk for mailing. The papers are initialed to indicate that the entry has been made.

No one in the office—not even the executive himself or his immediate assistant—has a more definite idea of the status of matters passing through the office than has this clerk. The significant advantage of having filing clerks possess such information is readily appreciated. They will know the meaning of papers they are filing; their work will cease to be drudgery; and given any satisfactory filing system at all, they will know how to get papers out on short notice, even where the description given them is rather incomplete. They are

also receiving excellent training in office precedents and will later be able to assume higher class work. There is a signal advantage for the other clerks too. The file is accessible to the whole office, and dispels all mystery about what is going on. It may appeal to an executive's vanity to think that he alone knows what his office is doing; but if he has that attitude, he need not expect his clerks to be of real, constructive assistance to him. Where the head alone knows the business of the office, the clerks are automatons, and when he is away, the office stands still. Decidedly, the force should be familiar with and interested in the activities of the office. They may not be able to say what policy should be taken on any matter; but they should know what policy has been taken.

While a given activity is in progress, the card can be placed in a special section of the visible index, or it can be filed in a drawer. In either case the executive has a convenient record of all important work in progress.

When a particular matter is settled or piece of work finished, the card can go into a card file as a part of a permanent record of activities. As years go on, such a record, especially if care is taken to indicate on the card at the proper time where a report of that activity can be found (in a publication, in the annual report, etc.), will be of constant value. Any executive knows how hard it is to find readily what work was done a few years before, especially by a predecessor. The permanent card file of activities lends continuity to the business of an office.

Other uses for visible indices will no doubt occur to the reader in connection with his special problems. They are especially valuable when large numbers of cards need to be filed for ready reference. The eye can find a card quicker than the fingers.

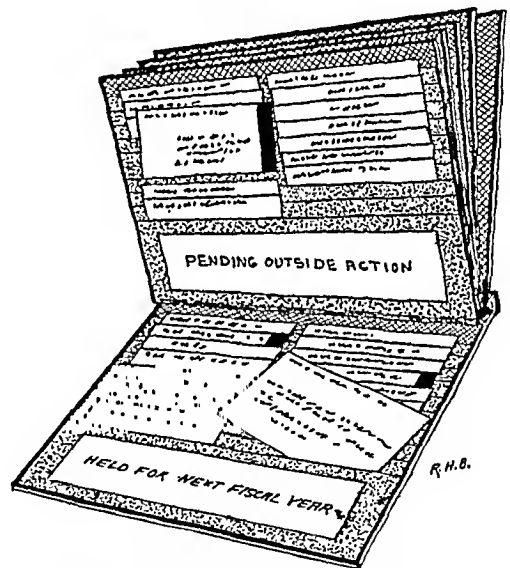
#### EXPEDIENTS FOR SMALL OFFICES

Some health officers may not feel like

going to the expense of purchasing visible file equipment. One of the following expedients may serve the purpose.

1. For 3 by 5 cards,  $\frac{3}{8}$  of an inch of each card to show, take large sheets of wrapping paper and cut them into strips 11 inches in width. Paste the ends of the strips together to form new strips each about nine feet in length. Each of the new strips will provide for 24 cards. Two and one-half inches from the end of the strips make a fold toward you,  $2\frac{1}{8}$  inches further down make a fold away from you; continue this alternation until the whole strip is folded. Staples

FIGURE 1



Sketch of visible index in which cards are slipped into pockets.

should then be run down the sides and the middle to form two sets of pockets for the cards. The backs of the strips are then pasted to sheets of board approximately  $8\frac{1}{2}$  by 11 inches, one on each side, and the boards are fastened into a loose-leaf binder. The disadvantage of this system compared with the purchasable equipments is that it is necessary to remove the card from the pocket in order to write on it, or to read anything on it except the legend. However, it has the advantage that the legends

appear at the top of the cards. (See Figure 1.)

2. With the following method, the record is written on slips of paper of varying lengths instead of on cards. Cut sheets of paper into strips, 20 of each size, the sizes to be  $2\frac{1}{2}$  by 9,  $2\frac{1}{2}$  by  $8\frac{3}{4}$ , etc., down to  $2\frac{1}{2}$  by 5. Divide the strips of each size into four groups, so arranged that in each group the  $2\frac{1}{2}$  by 9 will be on the bottom, the  $2\frac{1}{2}$  by  $8\frac{3}{4}$  next, and so on, with the tops of the slips in alignment. The four groups are then slipped into a spring back loose-leaf binder. The legends are written on the quarter-inch of the slips which is exposed. The slips on top of any given one can easily be lifted up to permit entries on it. As soon as any matter is settled, the slip is torn out, revealing a fresh one of the same length. The above contemplates 68 entries. Two or three sets can be kept in the same binder by inserting a flexible board between them. In this way as many as 200 entries can be carried at the same time. (See Figure 2.) This method does not make a satisfactory permanent record, nor can the slips be moved from one section to another. Colored signals, however, can be pinned to the slips. Entries

can be made and consulted more rapidly than in the case of the first suggestion.

#### THE PART CARD INDICES MAY PLAY

Do you index the important letters you write? Do you index published articles to which you may need to refer in the future? Do you index important memoranda or statements setting the precedents of your office? Possibly you have not realized what a valuable adjunct the card index can be to you. The ease of preparation and facility with which the index can be kept up to date are two of its attractive features.

A list of the card indices kept in the office under consideration may suggest to the health officer ways in which he can improve his use of this office method:

1. Index of completed activities. As suggested above, the visible index cards go into such a permanent card file as soon as an activity is completed.

2. Information letter index. Carbons of outgoing letters containing information which may be required in the future go into a special alphabetical file and are indexed by a clerk on cards. Some index of this sort is necessary, if an office is not to lose track of the vast amount of information given out, information which may have required hours to assemble in the first place.

3. Publication index, covering bulletins and articles published by the organization or by its staff.

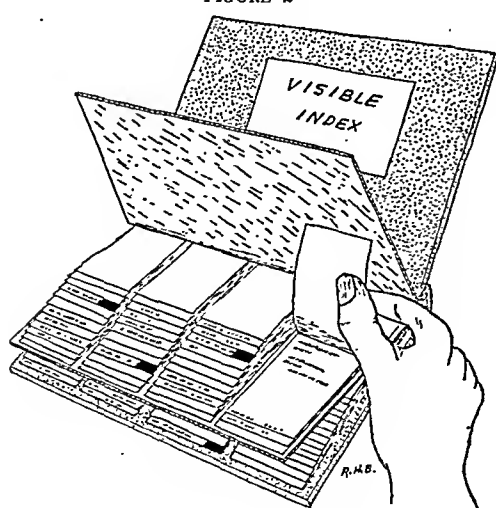
4. Circular letter index, covering instructions issued in regard to the work of the office.

5. Reference file index. A description of a decimal system file for papers which may need to be referred to in the future is described below. A card index of the jackets and important papers in this file is kept.

#### FILING INFORMATION WHERE IT CAN BE FOUND

"Where is that report I prepared a couple of years ago on cooperation with

FIGURE 2



Sketch of visible index in which record is made directly on slips of paper of varying lengths.

industrial physicians?" asked the health officer.

"I do not remember it," replies his assistant. "Do you know what was done with it?"

"I suppose I dropped it in the file basket."

"There are a number of places where it may be. I'll look."

No doubt the report is somewhere in the office and perhaps it will be located, after the office work has been disrupted in the search. Perhaps a clerk will finger it over while hunting and not recognize it, because it had nothing on it by which it could be easily identified. Perhaps it has been put under an entirely different subject by a clerk unfamiliar with the work of the office.

Any executive would appreciate the opportunity of having reports, memoranda, financial statements, pamphlets, miscellaneous information and other papers to which he will need to refer at some future time filed so that they can be located instantly by a clerk at need. In the office considered in this article, this matter is handled in two ways.

In the first place, the assistant to the executive keeps on his desk a scrap book for papers which must be referred to constantly. As these papers are pasted in the book, they cannot be misplaced; as they are carefully indexed, they can be found readily without the necessity of interrupting a clerk every time a paper is needed. The book takes little room and is available for the use of the other clerks in the office.

However, there comes into this office a vast amount of material which may be needed for reference at some future time, but which is referred to only occasionally. Some of it forms an invaluable record of office precedent and similar matters. Filed in the usual way by clerks, a large proportion of these papers would not be located at need. It has, therefore, been found necessary to establish a "Reference File" on a rather comprehensive scale, with a special card

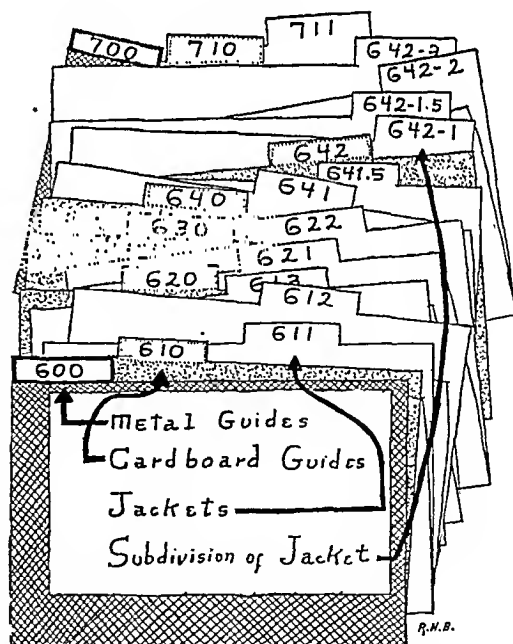
index. For convenience, a variation of the decimal filing system has been used. Each paper bears a number and can be returned to the file without difficulty.

The file has nine main classes, separated by metal guides, as follows:

- 000 General
- 100 Reports of previous activities
- 200 Data on present or contemplated work
- 300 Legislation
- 400 History, policy, and development
- 500 (Blank)
- 600 Congresses and Associations
- 700 Committees and Boards
- 800 Biological Products
- 900 Forms.

Each of these classes is divided into nine or less divisions, separated by card-board guides. For instance, the 000 class would be divided into 010, 020, 030, etc. The jackets come under these divisions, and the third figure in the number represents the jacket. If one jacket

FIGURE 3



Sketch of arrangement of sample guides and jackets for decimal filing system. (Legends omitted for simplicity.)

is 012 and another 013 and it is desired to insert a jacket between them, the number 012.5 is used and an unlimited num-

ber of insertions can be made in the same way. Occasionally a jacket will become too full for convenience. It is then subdivided, the jacket becomes in reality a guide, and jackets somewhat less deep are placed behind it, their numbers being separated from the main number by a hyphen. For instance, if jacket 472.5 is subdivided, the resulting jacket would be 472.5-1, 472.5-2, etc. It will be observed that the hyphen plays the part of the decimal in the usual system, while the decimal is used here to permit a large number of jackets in each division. (See Figure 3, preceding page.)

This system requires filing rigorously by subjects—quite an undertaking. There will naturally be a typewritten outline of the guides and jackets, additions being made when new guides or jackets are required. In this office it was found that, while the assistant necessarily chose the guide and jacket headings in the first place, the clerks were capable of filing individual papers without assistance.

#### HOW EACH IMPORTANT PAPER MAY BE EASILY INDEXED

Presumably a file of this character would at least have an index, on cards or otherwise, of the headings on the guides and jackets. If cross-reference sheets are used in the file itself (letting the paper go into one jacket and the reference sheet into another), a more exhaustive index could generally be avoided. The writer, however, wanted a file that would invariably produce the goods. He also felt that if a paper was worth filing at all for reference, it was worth a little attention at the time it was filed. He has, therefore, contrived a compromise between merely indexing the headings on the guides and jackets and indexing the individual papers.

In the first place, there is a card index of the headings themselves; but where a paper of any importance is to be filed, it is briefed on a distinctively colored slip pasted or stapled across the top of the document, and the principal words of the brief are indexed by a clerk on cards to

be filed with the other index cards. Take, for instance, a paper reporting the cost of a malaria campaign in a certain section of a city for a given period. The brief might read:

"Statement of Cost, Malaria campaign Greenwich addition summer 1920. Compiled by Stone. Campaign conducted by Henry. (Financial data—Mosquitoes—Ditching costs.)"

Words to be indexed are underlined. In parenthesis will be added subjects not appearing in the title, but under which the paper should be indexed. This brief would make the paper clear to the clerks. Since it would carry the decimal number of the jacket in which it was filed, there would be practically no danger of its being misplaced. If the executive later desired to destroy the paper, a clerk could withdraw from the index file the cards referring to it, because the paper would bear on its face the subjects under which it had been indexed, possibly years before. All that the health officer or his assistant would need to do under this plan would be to dictate the brief, indicating the words under which it should be indexed; and yet months after filing, the paper could be brought forth, almost automatically. The file needs little upkeep attention from the executive.

Does this look like too much system—too many cooks? Think of having filed in an orderly manner that mass of typewritten and printed memoranda and statements that clutter up so many offices and are unintelligible except to the person who was originally concerned with them. Such a reference file builds for the future.

#### OTHER SUGGESTIONS WHICH MAY SOLVE YOUR OFFICE PROBLEMS

Space will not permit a discussion of all of the methods used in this office for the transaction of business. Not all of them would be suggestive to the health officer, and no doubt some of them could be simplified or improved. By way of conclusion, however, it would seem well to summarize briefly a few of the meth-

ods not covered above. They may suggest a way out of an office problem that has been troubling you.

1. Outgoing letters go from the stenographers to a clerk in order that all typographical errors may be caught. This relieves the executive and his assistant of the necessity of watching for such errors. It also has the advantage of keeping that clerk thoroughly familiar with all action taken by the office.

2. To prevent failure to take action at the proper time, the office has a "Tickler" file. Colored sheets referring to any particular matter go into this file, carrying at the top a certain date and the initials of the person to whom the paper is to be given on the date indicated. When desired, an extra carbon on paper of the same color can be made of any outgoing letter; this will then be filed for attention under a certain date, permitting a follow-up letter if necessary at that time. The "Tickler" file can be used by any clerk, and is used by most of them. Sheets are filed for many of the important matters which are pending, the actual correspondence going into a pending file, arranged by subject. If the correspondence itself were to go into the "Tickler" file, it would be lost to view until the date it carried. If the matter has not been settled by the time the colored sheet is returned, it is either followed up or the sheet is filed for attention on a future date.

3. Clerks are requested not to keep individual files. They make use of the general files, and in this way when the clerks are away papers are not hidden in drawers when they should be getting attention. Desks are kept clean of all but passing papers. The Visible Index is used for a number of purposes by the clerks, and the records kept in it are open to easy inspection by all. If a "Tickler" file paper initialed for a clerk comes to attention while he is absent, it goes to the person covering his work, or to his immediate superior.

4. Do you have difficulty in getting

your clerks to continue to follow instructions once given them? To avoid this difficulty, the office in question issues a set of numbered instructions which are routed to each desk once a month, read, and checked by the personnel. Systems once organized therefore keep going.

5. The assistant to the executive uses a note book which he carries in his pocket. On his desk he keeps under a glass paper-weight, a statement of his duties for the day, one of which is to look through the note book. Items put in the book while he is away from the office are therefore automatically brought to his attention on his arrival.

6. The assistant also keeps a loose-leaf book in which he files abstracts of important articles. The preparing of such abstracts fixes the subject in mind, and as the material is indexed, there is always ready reference to books or articles.

#### SELLING THE SYSTEM TO THE OFFICE

The health officer faces the fundamental need of educating his force to conduct his business systematically and in accordance with his policies and desires. He is handicapped in comparison with business in that he cannot pay the same salaries. He must, therefore, to a large extent, take untrained material. What can be done with such material by creating the proper coöperative spirit in an office is remarkable. From this point of view, the principles stated above—to give the clerks systems intelligently worked out, based on the precise needs of the particular office, and to train them to carry out these systems—take on a new meaning. It is necessary not only to establish the systems, but to sell them to the office force. It is by the creation of a proper spirit in the office—for want of a better term, this spirit may be called team play—that it will become possible to institute methods and secure the enthusiastic interest of the force. But infinite pains is also the price of teamwork.

# EDITORIAL SECTION

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## DEVELOPMENT OF COUNTY HEALTH WORK

The county health department has definitely demonstrated that it is an essential part of our public health machinery. It establishes a unit of working force in the subdivisions of a state, capable of joining hands with the state board of health on the one side, and with the individual in his home on the other. It affords the machinery for carrying out effectively programs which may be directed to any one of the numerous outstanding public health problems.

Within the past three or four years, approximately one hundred twenty-five counties, representing twenty-one states, have inaugurated county health work on a full-time basis. It is being advocated in many other states, and where necessary, laws permitting it have been submitted for legislative action.

The principal task which now confronts those engaged in this field involves improvement in the quality of the work, and this in turn involves securing a better trained personnel, and improved methods of procedure in dealing with some of the public health problems.

A number of health officers engaged in the work are taking special training in institutions such as the Johns Hopkins School of Hygiene and Public Health in Baltimore. Others are receiving special training at health officers' institutes covering from one to two weeks of intensive training under well qualified instructors.

For the purpose of evolving more effective methods for dealing with the problems relating to county health work, a conference was held December 15 and 16, 1920, at the Johns Hopkins School of Hygiene and Public Health, at the invitation of the School and the International Health Board. Representatives of the United States Public Health Service, health officers from ten of the states which have taken the lead in the development of county health work, faculty members of the School, and others interested in the subject were present. The various problems were dis-



cussed in open session, and a committee for each was appointed to submit a report for the consideration of the conference. The reports as modified and approved by the conference are compact, specific, and represent the combined views of a majority of those experienced in the work. They should be of value to all who are interested in the development of improved health service. Accordingly, they are being published elsewhere in this issue of the JOURNAL.

J. A. F.

## RELATION OF BIO-CHEMISTRY TO PRACTICAL HYGIENE

It is just 30 years since the first Section, that of Chemistry and Bacteriology, of the American Public Health Association was formed, largely through the activities of Professor Wyatt Johnston of McGill University. The scientific problems in public health at that time were essentially included within these subjects and water supply questions and questions of sewage disposal chiefly occupied the sessions. The outcome of the efforts of these specialists has been the publication of a "Standard Methods of Analysis of Water and Sewage," which in its various editions has been the hand book for laboratory workers in all parts of America.

The rapid expansion, however, of science as applied to public health could not long be limited to these subjects, and since that time amongst other Sections that on Food Supplies and Drugs has been formed and for five years has brought in many valuable reports on all phases of these subjects as they affect the public health. These reports, however, have dealt rather with the macroscopic than the microscopic phases of the subject. Today, however, through the work being done in hundreds of laboratories the problem of foods is being re-studied along quite new lines, based upon scientific facts in relation to the stereochemistry of the hydrocarbons and the vital functions of enzymes. The old chemists had discovered polymerism in organic compounds and taught us much regarding the variation of products through their interaction with other chemicals; but it has remained for the "New Medicine" to indicate the intimate relations of enzymes whether in the food or in the tissues, in order that the meaning of metabolism whether in plants or animals, can in some degree be understood.

Assuming that energy in matter, as the earth became fitted for life on its surface, was adequate to supply vital functions to the simplest organized materials, we need only recall the life functions of the single-celled amœba and thence proceed from the metazoa up to and through the vertebrates to man, in order to estimate the advances in complexity of organization and function, based upon the differentiation of the cells, whether those of the blood or of the tissues nourished by it and which reach their climax in the pyramidal cells of the brain cortex where thought is elaborated. It is this increasing exactness of our knowledge, which is making real advances possible in public health, whether it be in the bio-chemistry of milk and other foods or in the complex bacterial actions which are carried on in the sewage septic tank. We used to say foods were composed of proteins, fats and hydrocarbons and that they were acted upon by saliva, gastric juice and the *succus entericus*. Today it is of much greater importance to know of what saliva is composed or what is pancreatin and why does either of these activate on food and how?

For forty years we have been analyzing milk into its three constituents, have been making butter and cheese, have certified to the bacterial contents of milk and its freedom from *B. tuberculosis*. This has meant much, but what has it told us of its more intimate biochemical constituents, of its casein and its caseinogen and the essential actions on these of the juices of the digestive tract and yet more of the influence of the vitamins contained in the milk, which seem to be for us elusive mysteries of Nature's laboratory? It is, indeed, all a new world, hitched so far as personal hygiene is concerned to that yet more mysterious

entity spoken of as the vegetative or sympathetic nervous system of man. Barring the essential enzymes in the food, this seems in itself a lifeless thing as regards the human system; yet it is subject to the caprices of a dozen biochemical products, which activate or are inhibited by that elusive something we speak of as "mind."

Why, for instance, should the sight of or the thought of food set the parasympathetic nerves to work and allow certain glands of the mouth to pour forth their highly organized cell contents, or yet more, how does the delicate control of the autonomic system need to be constantly exerted over these and other endocrine glands, that they should be enabled to supply exactly the necessary amount of enzymes for our daily needs.

But equally elusive is the bio-chemistry of the enzyme itself. What kind of prescience should indicate to a something we can scarcely yet analyse, its duty in the catalysis of foods? Buchner seems indeed, to be approaching the solution of the problem when he can show that the growth of yeast produces an enzyme, a natural something which can be expressed from yeast cells, and which instantly induces alcoholic fermentation. This discovery has resulted in the broad generalization that all chemical reactions mediated by cellular activity are due to a similar mechanism and thereby all intermedite metabolism in plants and animals is explained. Possibly!

It is in this direction we turn for an explanation of the marvels of immunity and anaphylaxis and the further insight into those mysterious somethings spoken of as antibodies or antigens, the amboceptors and complements, terms which are daily being used in the laboratories and are gradually coming to have some meaning for the uninitiated. So it is that we see the dreams of Duclaux and Pasteur coming true through the investigations of such men as Osborne, Mendel and other workers amongst us, who if they cannot exactly tell us what mind is, can at least, indicate for us something of the delicate metabolism of the body governed by it and so add something to the armamentaria of our public health defences.

PETER H. BRYCE.

### PRESIDENT HARDING AND PUBLIC HEALTH

Like Theodore Roosevelt, President Warren G. Harding believes that the nation's health is our greatest asset. With a view to coördinating the health and welfare activities of the government he has asked Brigadier General Charles E. Sawyer, his personal physician, to make a study of all such activities. In an interview with a representative of the *JOURNAL*, General Sawyer stated that a consideration of the subject of public welfare involves three questions which are closely related. They are education, public health, and social service. These three matters are being studied as the foundation upon which to build the superstructure of public welfare, and if the survey proves it worth while, there will be a special government department under which these affairs will be carried on. General Sawyer made the following statements, which are quoted verbatim:

"The President is whole-souled and generous and has at heart the desire to increase the public welfare. It is his ambition to make the United States exemplify the best in welfare as well as in all other departments pertaining to the government. He regards the public health as the American nation's greatest asset. It is his desire that all official agencies in public health should be so brought together as to create the greatest efficiency and so help to make us the strongest people of the world, both mentally and physically."

General Sawyer also expressed his own personal opinion that there was nothing more important in government than the public health.

J. A. T.

## LETTERS TO THE EDITOR

EDITOR AM. JOURNAL OF PUBLIC HEALTH:

I wish to acknowledge the justice of the exception taken by Dr. Wendell C. Phillips to the misstatement made in the *Bulletin of the New York Medical Association* for October, 1921, in relation to the Narcotic Drug Bill endorsed by the Medical Society of the State of New York and known as the Cotillo Bill.

The misstatement copied in your JOURNAL and to which Dr. Phillips now takes exception was as follows: "This bill which would have deprived the physicians of this State of the right to treat cases of drug addiction at any stage of this disease except under institutional restraint was also advocated and offered by the Medical Society of the State of New York."

Dr. Phillips' correction was published on the eve of a hearing before the Governor of New York on an identical measure passed by the Legislature of New York and known as the Fearon-Smith Bill.

This bill had the solitary endorsement of the Medical Society of the County of New York. It was opposed at this hearing according to the reported accounts by all the other County Medical Societies of the State under the lead of Judge Cornelius F. Collins of the Court of General Sessions of this city.

At this hearing Gov. Miller plainly indicated by his examination of Dr. Wm. P. Healy, the spokesman for the New York County Medical Society, that he took the view that the clause in the bill favored by this society and which Dr. Phillips quotes in his letter to you "to treat such cases by personal administration of narcotics by the physician" did practically prevent physicians from treating such cases even if his "right" to do so still remained. If the word privilege had been used instead of the word right in the phrase objected to by Dr. Phillips its correctness could not have been questioned where the form of treatment, as was shown at this hearing would have re-

quired from two to six visits a day either to the patient by the physician or vice versa.

In excuse of this misstatement it may be said that this issue of the *Bulletin* was got out hastily on the eve of the Gubernatorial election in New York State and sent to the 15,000 physicians of New York to advocate the election of Judge Miller "not as a political matter but as a matter of professional concern to every physician in the State." This stand was taken as a protest to Gov. Smith's persistent advocacy of Compulsory Health Insurance and on account of the inhuman, illegal and unscientific act of Compulsory Registration of Drug Addicts by his Narcotic Drug Commission in the City of New York.

In only three cases was the justice of this action questioned by the physicians addressed. One of the objections to this course was made by a Deputy Commissioner of Narcotic Drug Control, another was made by a private practitioner and the third by Dr. Wendell C. Phillips in your columns.

Judge Collins sentenced the first and only physician convicted of a technical violation of the drug laws of the State of New York in correction with the keeping of his records. This was about three years ago and although this sentence was suspended the change in the attitude of the local judicial authorities can be judged by the position taken today by Judge Collins in regard to the rights of the physicians in prescribing for addicts at the hearing before Governor Miller. Everywhere else in the State of New York a similar change has taken place except in the Councils of the Medical Society of the County of New York.

The same form of medical educational missionary work which has been so successful elsewhere still remains to be done in this the last remaining place to resist its influence.

JOHN P. DAVIN, M. D.,

Exec. Sec'y, N. Y. Medical Association,  
New York City,  
April 27, 1921.

# BOOKS AND REPORTS REVIEWED

*Mental Self-Help.* Edwin L. Ash, M.D., M. R. C. S. New York: The MacMillan Co., 1920. Pp. 119. Price, \$1.60.

This book presents in simple form and language advice as to mental health. While a great many of the recommendations sound like truisms, their repetition will certainly do the inquiring mind more good than many of the more elaborate hypotheses advanced in recent times.

There is a decided religious trend to the book, showing intimate connection between medicine and religion in the philosophy of life. Much of the hustling and bustling of the modern times is decried and simplicity of living recommended. A wholesome book.

A. W. STEARNS, M. D.

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*Everyday Mouth Hygiene.* Joseph Head, M.D., D.D.S. Philadelphia: W. B. Saunders Co. Pp. 67. Price, \$1.00.

Considering the recent emphasis placed upon the importance of the mouth as a source of secondary infections affecting the bodily tissues, there have been fewer new publications preaching the doctrine of mouth hygiene, than might be expected. Books on Mouth Hygiene issued in the past have covered the subject so comprehensively that average readers would not attempt to digest them. Some of the small leaflets of dental toilet instruction have, on the other hand, been so brief as to fail to excite the reader's interest. Dr. Head's volume seems to strike a happy medium in the length and thoroughness of its treatment of the various phases of the subject.

We experience a pleasant relief from the diction that too often comes to the public from professional men who are in the habit of writing essays for presentation before scientific audiences. The text expresses the subject matter in terms easily understood by the average layman and, on the whole, the book is interesting as well as instructive.

Great stress is laid on the proper use of floss silk as a cleansing instrument and a rapidly increasing number of dental practitioners will agree with the author in his opinion that, "den-

tal silk, properly used, is far more important as a means of cleansing and preserving the teeth and gums than the tooth brush."

Unfortunately a special form of tooth brush having one-quarter inch bristles is insisted upon as the only type that will effectively meet requirements. We believe that a work addressed to the public should express the consensus of professional opinion on such a point and the majority of dentists would not recommend a brush of this shape for general use.

On the whole, the book, *Everyday Mouth Hygiene*, is a valuable addition to the literature on this important subject.

EDWIN N. KENT, D. M. D.

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*Industrial Housing.* Morris Knowles. New York: McGraw-Hill Book Co. 1920. Pp. 408.

When an industrial company decides to build housing accommodations for its employees, it is entering into an entirely new line of business, and it too often does not appreciate its complexities and the value of expert advice. Until recently one practical difficulty has been that in order to get such expert advice it has been necessary to consult real estate men, architects, town planners, engineers, contractors and builders. Their various recommendations usually conflict and the industrial manager who is not a housing expert finally has to use his own judgment in harmonizing their various opinions, or else rely upon the advice of only one or two of said experts, which may be rather prejudiced or limited. The result is that good housing on an economic or financially sound basis is rarely realized in industrial housing. The houses are either badly built or arranged, or the site is poorly chosen or planned, or the cost of the houses or development is far in excess of what it should have been. Only recently have housing companies been formed whose business it is to combine the work of the experts in different phases of the housing problem, so that the industrial manager can obtain the best practical results by employing a single company to build the houses rather than follow the old method of consulting numerous experts and then be unable to decide wisely which advice to take.

Mr. Knowles' book on "Industrial Housing"

shows a rare combination of a thorough understanding and appreciation of all the most important elements necessary for good houses and a knowledge of the practical methods of reaching the best results. For a housing company or for an industrial manager who is in a dilemma regarding a housing problem, it is a most valuable book. Not only are the essentials of the best housing standards clearly shown in considerable detail, but all practical problems are considered. As Mr. Knowles hoped, the book not only shows "the need of studying all factors, but the probable weight needed to be given to each; with the result that a happy and judicious decision will result in any given case after a review of all the conditions." He gives not only the factors involved in deciding upon the best site and methods of town planning, but he shows how the streets, pavements, sewerage systems, and other utilities should be constructed, and how the disposal of garbage and waste should be arranged. A combination of pleasing design of houses and economic cost is shown to be not only possible, but practicable, and the problems of disposal or management of the houses when completed are wisely set forth. If more housing developments should be built with a clear understanding and following of advice such as Mr. Knowles gives, there would be far less cause for abuse of "industrial housing" and for regulation of housing for the safety and health of the public.

HENRY R. BRIGHAM.

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**Epidemic Respiratory Diseases.** *Opie, Blake, Small and Rivers.* St. Louis: C. V. Mosby Co., 1921. Pp. 402. Price, \$6.50.

This book is a partial account of the work done by the commission of army medical officers which was detailed to study pneumonia at Camp Funston and Camp Pike. Besides the above officers, Maj. Allen W. Freeman was a member of the commission and he will publish a separate report on the epidemiology of influenza and pneumonia at Camp Pike. The present volume deals chiefly with the bacteriology and pathological aspects of influenza, bronchitis and pneumonia, but the particular merit of the work is that, all along, the laboratory findings are correlated with the epidemiological data. Methods of control, too, are not neglected.

The bacteriology of influenza receives much attention and the authors are among the comparatively few who are swinging back to the

idea that Pfeiffer's bacillus is the causative agent. They certainly show that it is found with very great constancy in the disease and, though by no means claiming that the demonstration is conclusive, they present evidence which is very convincing. The last chapter deals with the pathogenicity of the bacillus for monkeys.

The different types of pneumonia occurring in non-epidemic periods as well as in connection with influenza and measles were carefully studied and are discussed in connection with the clinical picture and the epidemiology. A very vital question for those interested in preventive work is the source of the germs causing pneumonia. Are they the pneumococci and streptococci commonly found in the mouth and which become more actively pathogenic because of lowered resistance of the subject, or are they more virulent types spreading from man to man by contact and droplet infection. The relative importance of these sources of infection receives critical consideration.

The etiology of pneumonia is still too imperfectly understood for health officers to formulate methods of control which are assured of success. Studies like these, repeated at different times and in different places, are needed to complete our knowledge of this group of diseases. CHARLES V. CHAPIN, M. D.

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**Types of Mental Defectives.** *Martin W. Barr, M.D., and E. F. Maloney, A.B.* Philadelphia: P. Blakiston's Son & Co., 1920. Pp. 179. Illustrated. Price, \$3.00.

This is a very interesting case record of defectives. A great many different types are described and illustrated, giving the reader a rather clear idea of the different degrees and types of feeble-mindedness. Much of the modern advance in this subject has been omitted.

Heredity includes many unrelated things. Prenatal influence is frequently mentioned in idiocy; epilepsy as a complication is passed over; the statement that a mother's second cousin became insane because of masturbation is given a place in etiology and so, while the book is readable and useful, its form and subject matter are somewhat antiquated.

A. W. STEARNS, M. D.

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**Teaching the Sick.** *Manual of Occupational Therapy and Re-education.* George Edward Barton. Philadelphia: W. B. Saunders Company. Pp. 163. Price \$1.50 net.

In the preface the author states that the

purpose of the book is "to give a clear, concise and truthful account of what has been actually accomplished in the way of Occupational Therapy and Re-education." These facts have proved themselves through the personal need of the author, and his further dealings with the sick and with those teaching the sick.

The first thirty pages give a very general outline of the fundamentals of occupational therapy. That "there are no more cripples except of the will," has been proved again and again among the disabled, especially in our more recent work among the wounded and crippled soldiers during these past five years, and much of the restored courage and renewed activity is due to the early application of occupational therapy. The author points out that the "needs of war have not exceeded the needs of peace," and that the same principles apply to the reconstruction of all sick people. It is clearly emphasized that the beneficial therapeutic effect must be the first consideration in giving any kind of work to the patient; "The true relation of the work of the sick to that of the well man is not that of the percentage of normal labor which the sick man performs, but it is the amount of work above zero which has been performed."

There follow quotations from the French Minister of Agriculture showing the need in that country for the "return to the land," how it has been encouraged in every way and the splendid results accomplished by the crippled French soldiers. This the author has made applicable to the United States, and the last two-thirds of the book cover the specific work carried on at Consolation House, but showing what could be done by the sick men throughout the country were they trained to take up and successfully reclaim the abandoned lands.

A very helpful and lucid treatise is given on mechanical drawing and how from very elemental beginnings it can be made an asset in almost every trade in life, but especially developed along the farming lines.

Granted its very real value, it would seem as if in the accentuation of mechanical drawing the author is contradicting his knowledge that the sick are difficult to interest and to handle. There are thousands of sick whom the teacher with all possible tact and skill could never interest in mechanical drawing however presented and

disguised. And though women have worked with it and have eventually built pigeon houses, it is obviously not the type of work for which the majority of them are fitted or in which they are interested. Many who have worked with the sick find that the knowledge that the work will be of future value to them is no stimulus whatever. They are often sick of their work and everything allied to work is shunned. The contact between patient and teacher is in that case made through the appeal of some color or object possibly with little educational value, but which means an article quickly completed and so far as possible, of artistic value and good craftsmanship. Basketry, weaving, modeling, chip-carving, etc., are only permissible, according to the author, if necessary for the first step in the "rebirth of the desire to do," after this it would seem as if the development of wood work as it pertains to the needs of those interested in farming was the ultimate object of re-education.

Books on Occupational Therapy are still few and although in this small volume the author's outlook for the patient is somewhat circumscribed there is no doubt that directors and occupational therapy aides will find in it much of real value, both theoretically and practically.

HARRIET A. ROBESON.

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*Optimistic Medicine.* By a former Insurance Man. Philadelphia: F. A. Davis Company. 1920. Pp. 318. Price \$3.00.

This is a well-written and sensible book. One can see no good reason why it should be anonymous. It is addressed primarily to the physician. Its main thesis is that practitioners have generally missed large opportunities for service in the capacity of advisers and instructors in matters of hygiene. They have narrowed their attention too strictly to the passing conditions for which they have been consulted. An attractive picture is drawn of the family doctor, knowing the constitutions as well as the maladies of his patients and by his occasional counsel saving them from many misfortunes. It is urged that he has too often refrained from assuming such a function through fear of seeming officious or of soliciting employment. The argument is developed at length and with a wealth of examples.

PERCY G. STILES.

# ASSOCIATION NEWS

## A. P. H. A. JUBILEE VOLUME

A volume portraying the history of Public Health during the past half century is to be issued in the Fall of 1921 in commemoration of the fiftieth Annual Meeting of the Association, a Jubilee Volume. The book will cover some four to five hundred pages and will be composed of about 20 essays, each written by a specialist in his branch of Public Health activity.

While the volume will be devoted primarily to the developments of Public Health during the last fifty years, it is to be expected that the authors will naturally portray a background of the developments prior to 1872, when the Association was organized.

The nature of the volume is best indicated by the following table of contents, the titles in which are not absolute, the authors having the liberty to change them to some extent.

1. Microbic Theory of Disease and Its Utilization in Public Health Work. Prof. F. P. Gorham.
2. A Half-Century of Progress in Life Prolongation. F. L. Hoffman, LL. D.
3. Quarantine and Its Effect on Public Health. Surgeon General H. S. Cumming.
4. State and Municipal Control of Disease. C. V. Chapin, M. D.
5. Collection and Utilization of Vital Statistics in Public Health Work. W. H. Davis, M. D.
6. Water Purification and Its Effects on Public Health. Prof. G. C. Whipple.
7. Garbage and Sewage Disposal and Its Effect on Public Health. Rudolph Hering, D. Sc.
8. Control of Offensive Trades and Trade Wastes in Its Effect on Public Health. Prof. E. B. Phelps.

9. Inspection and Control of Foods, and Their Influence on Public Health. Carl L. Alsberg, Ph. D.
10. Milk and Its Influence on Public Health. C. E. North, M. D.
11. Child Welfare and Conservation of Infant Life. Philip Van Ingen, M. D.
12. Industrial Hygiene and Its Effect on Public Health. George M. Kober, M. D.
13. Housing and Building Laws and Their Influence on Public Health. Lawrence Veiller.
14. Conservation of Foods by Cold Storage, Dehydration, Canning, etc. Prof. S. C. Prescott.
15. Insects as Carriers of Disease and Their Relation to Public Health. L. O. Howard.
16. Ventilation in Its Relation to Public Health. George T. Palmer.
17. History of the American Public Health Association with Biographies of Deceased Past Presidents. Dr. Mazyck P. Ravenel, President of the Association.
18. Fifty Years History of Public Health Work in the Dominion of Canada. Dr. Peter H. Bryce.
19. Fifty Years History of Public Health Work in the Republic of Mexico. Dr. A. B. Vasconcelos, Editor of the Medical Gazette of Mexico.
20. Fifty Years History of Public Health in the Republic of Cuba. Dr. John Guiteras.
21. History of the New York Board of Health. Dr. Stephen Smith, First President of the Association.

The intention is to sell this volume to the members of the American Public Health Association at cost. Non-members may obtain the volume by paying the customary subscription price for volumes of this type. Further announcements will be made during the coming months.



**Hotel Astor will be the Hotel Headquarters of the Fiftieth Annual Meeting of the A. P. H. A. A very important set of Programs is in preparation. Have you made up your mind to attend?**

# REPORT OF THE COMMITTEE ON SMALLPOX

Read before General Sessions, American Public Health Association, at San Francisco, Cal., Sept. 16, 1920.

[In reading this Report Dr. Charles J. Hastings, Chairman of the Committee, stated that he was probably appointed on account of a desire for information on the outbreak of smallpox at Toronto in October, 1919.]

For years Toronto has been practically free from this disease, in fact it was not unusual for twelve months to pass without a single case. An epidemic in Montreal in 1885, at which time there were more than 3,000 deaths, and following that a number of cases occurred in Toronto with a comparatively high death rate.

This, as is usually the case, resulted in our population being well vaccinated. Even the Board of Education was so intimidated that it enforced compulsory vaccination of all children before entering school. However, the epidemic had not long subsided when politics began to assert itself, resulting in the repeal of this order, and consequently when smallpox struck our city last year, it had an exceptionally fertile field, a huge population of unvaccinated children and adults.

In presenting this report, we feel that it would be a reflection on your intelligence even to refer to the controlling influence of vaccination on smallpox, inasmuch as no one who is capable of intelligently understanding and passing sane judgment on any problem can longer question the fact that there is no other problem in the field of preventive medicine and no other scientific fact so conclusively demonstrated as that of the controlling influence of vaccination and re-vaccination over smallpox.

Your Committee, therefore, wishes to draw attention to the difficulties that one encounters in an epidemic of this exceptionally mild type of smallpox, which has been distributed more or less over this Continent for the past 20 to 25 years.

The most striking feature of this type of the disease is the fact of its continuing so attenuated through all these years. It is true that Jenner, Welch, Schamberd, Sydenham and other early writers were familiar with this mild type of the disease; in fact, in the eighteenth century there were different outbreaks so mild that the mortality was as low as from one-half to one per cent. However,

these milder forms did not continue and were usually followed soon after by a much more typical form of the disease, and with the usual high mortality.

An interesting incident occurred in this connection some eight years ago in Carbondale, Pa., where there was an extensive outbreak without any deaths; and at the same time smallpox of an European importation, a much more severe strain, developed in Pittsburgh, with a mortality of 27%.

**Toronto Epidemic.**—Scattered cases occurred in our city as early as June, 1919, but did not take on epidemic form until the late autumn. As is usually the case, the medical profession was misled by there being a large number of cases of chickenpox in the city at that time, there having been as many as 100 or more cases reported every month during the summer months. However, many of these cases reported were found to be adults and were no doubt smallpox. These cases began to arouse suspicion, in consequence of which some of the physicians began to request that our diagnostician see the case in consultation wherever there was doubt. It was then found that a large number of cases that were being reported as chickenpox were really a mild form of smallpox. The symptoms were the sudden onset, chill, followed by fever, ranging from 102° to 105° within the first 24 hours, headache of a more or less severe type, aches and pains in the limbs and body generally; lumbar pains in about 50° of the cases; nausea and vomiting in about an equal proportion; acute abdominal pains, in some even simulating appendicitis. These symptoms continued for about three days, gradually abating in severity. On the fourth day the patient was, as a rule, much improved, the degree of improvement depending on the severity of the original symptoms.

During the following 24 hours the rash appeared: first, along the forehead or around the mouth, on the inner surface of the forearms, then spreading to the scalp, face and shoulders, taking about 36 hours to reach the lower extremities. Macule and papules had a definite feel to them, turning to multilocular vesicles on the third day, gradually becoming pustular on or about the sixth day. It was often possible to find only three or four truly



umbilicated vesicles at one time. The pustular stage was well advanced about the eighth day and scabbing began almost at once, leaving in two or three weeks a red scale-covered base without pitting. Little or no rise of temperature was noticed during the onset of the pustular stage, usually not more than from one-half to one degree. Patients would express themselves as feeling fine except for irritation and discomfort from the eruption.

**Explanation of Spread.**—A community in which the children and young adult population were unvaccinated afforded a fruitful field for smallpox to spread in, either mild or otherwise. Secondly, fears of quarantine, congested living quarters, and the crowding together incident to the onset of cold weather and shortage of houses, all favored the rapid spread of this so-called epidemic of chickenpox. Thirdly, the chief difficulty was one of diagnosis. A large number of the medical profession felt that it was only a severe form of chickenpox, and others that it was not true smallpox, but a hybrid form. Both of these groups seemed to have some grounds for their contention.

Most of the arguments advanced for failure or refusal to diagnose these cases correctly, centered around the character of the eruptions of which there were undoubtedly wide variations. In many the lesions were very few in number, a goodly number having only half a dozen altogether. In some the pustules lacked the pearlike, semi-globular appearance, and were ragged and poorly shaped. Again the vesicles did not by any means always reach the pustular stage. Some became scabs while others went on to pustules, and the shortening up of the papular, vesicular and pustular stages was noticeable in many cases.

In young children the lesions were in the majority of cases few; in fact in most of the cases, the condition resembled chickenpox much more than smallpox. This was possibly due to the fact that although unvaccinated themselves they had received some immunity through two or three generations of successfully vaccinated parents.

Unfortunately the prodromal symptoms in smallpox very closely resemble those of La Grippe, and in many cases physicians were called and the case diagnosed as grippe, and as soon as these symptoms subsided, did not make further visits, and therefore, did not see the eruption when it appeared. Many

of those in the poorer sections returned to work after the prodromal symptoms, and the rash appearing while they were engaged in their several vocations.

Then there was the difficulty to contend with of physicians making a diagnosis of chickenpox. They were in many cases unwilling to change their opinions even when a second case developed.

The exceedingly low mortality rate and the absence of such looked-for symptoms as marked depression, usually seen in the initial stage, and later the characteristic odor, and also the absence of the secondary rise in temperature in the pustular stage, together with the absence of pitting, and also the absence of confluent phases, constituted a very perplexing problem and one difficult to get anything like a reasonable consensus of opinion on, so far as the medical profession is concerned.

**Relation of Vaccination.**—With regards to the relation of this mild form of smallpox to vaccination, we tabulated several groups. In one group of 238 cases, 210 showed no evidence whatever of successful vaccination. In a larger group of 305 cases, 252 had never been successfully vaccinated. These percentages were also found to hold good for a larger group of 953 cases, and in groups one and two, only six had been vaccinated within ten years.

It is worthy of note that only one case of smallpox was found in the Jewish population of about 40,000, while the proportion in the Gentile population was one in every 754. The whole of the foreign population was comparatively free.

The incubation period in most of these cases averaged nearer 14 than 11 or 12 days. The presence of prodromal rash was comparatively rarer, and only half dozen cases came under the notice of the Department. These ranged from a slight erythema in some to an extensive measles-like eruption in others, appearing during the first 36 hours of the initial stage.

One interesting coincidence was seen by the diagnostician of the Department, in which a child, aged 7, had a typical attack of chickenpox, and while the scabs were still present, she developed smallpox, which she had contracted from her father who had just recovered from the disease.

There were in all some eight or ten cases

which reported a previous attack of smallpox. We are not able to corroborate these, however, all of them having occurred where statistics were not available, and only one showed any pitting.

The peculiar characteristic odor of the suppuration period was absent in the vast majority of cases.

Lesions on the mucous membrane of the nose and throat were not often found, except in a few of the more typical cases.

The constant appearance of the eruption on the palms of the hands and soles of the feet was felt to be of diagnostic value, owing to the rarity of lesions in these areas in chickenpox.

The presence of the prodromal symptoms to a greater or less degree, in the vast majority of cases, afforded probably the best guide in diagnosis.

**Influence of Vaccination of Contacts in the Incubation Period.**—Vaccination in the first week of the incubation period seemed to have a definite modifying effect on the course of the disease, while vaccination early in the second week in many cases gave us concurrent vaccination and smallpox, both running a fairly typical course. We had some 70 cases of this character.

We felt from our observations of these contacts that the period for immunity after vaccination had been done was variable, but two weeks was nearer correct than the shorter period which had been previously recognized. Two weeks seemed to be the minimum time required.

**Diagnostic Difficulties.**—It is a well known fact that chickenpox lesions which remain unruptured may ultimately become pustular. It is also true that smallpox pustules when partially ruptured will frequently assume an oval or irregular shape, making it difficult to distinguish from the unruptured lesion of chickenpox, which has become pustular.

Many of the cases presented at the same time papules, vesicles, pustules and crusts. The lesions were so scant in many that there were relatively as many or more on the body than on the face or extremities. In a well-marked case of chickenpox, the lesions occurring about the ankles and feet, wrists and hands, very frequently present, after full development, a picture of smallpox pustules. My diagnostician had ample opportunity to note this in the cases of chickenpox which de-

veloped in vaccinated children in the wards of the Isolation Hospital during the period of the epidemic.

He reports one case in particular, in which the child was removed from the diphtheria ward by the assistant, and isolated for chickenpox. It was the typical, oval, watery vesicle of chickenpox, and he did not consider it necessary to call the superintendent's attention particularly to the case. However, when my diagnostician examined the child, the lesions had scabbed on the body, and those about the ankles and wrists and a few on the soles of the feet presented a picture identical with that of smallpox in the pustular stage.

Another child had been exposed to this case, so we watched for developments. In due time this child developed a typical picture of chickenpox, and only then was my diagnostician satisfied that his assistant at the Isolation Hospital had made a correct diagnosis in the original case.

I might say that the Research Laboratories of the University of Toronto reported on the contents of the vesicles in these cases to be that of smallpox.

Variceloid smallpox, therefore, in the event of an epidemic, may present, especially in the distribution and appearance of an eruption which has not come under observation until several days after the onset, features which closely resemble the mature and unruptured lesions of chickenpox. In such a case, the presence or absence of a history of prodromal symptoms common to smallpox must, and we believe will, accurately determine the diagnosis.

The patient may not always complain of pain in the small of the back, but a history of headache, nausea, chills and general aching pains usually described by the patient as La Grippe, with the eruption appearing after recovering from these earlier symptoms, a matter of from three to five days, is quite sufficient to decide in favor of smallpox.

There were, however, a certain number of cases which were so typical that the taking of a history of prodromal symptoms was considered superfluous but in the case presenting a scant and variegated type of lesions, it is the only point left to fall back on.

Obviously it is always desirable to see the case at the beginning of the vesicular stage if possible. There is then the least possibility of error in diagnosis. The vesicle of chickenpox rapidly attains its full size, and is soft and

velvety to the touch, while the vesicle of smallpox, that is in its very early stage, is very small, pin-head in size and surrounded by a pink areola, almost as large as a five-cent piece. It is firm, almost hard, and when the finger is drawn across it with a little pressure, a scratching sensation is experienced. This is what is meant by the word "shotty" so frequently used in text books. In referring to this "shotty" sensation, they should always specify that they refer to "bird shot."

The earlier vesicular stage is the time when the patient has just recovered from the so-called La Grippe. His temperature is normal, the lesions are fresh, and have not been disfigured by scratching, and his memory of the prodromal symptoms is fresh and accurate. The patient with chickenpox at this stage is feverish, drowsy, and complains of aching pains. The lesions are so different that diagnosis is not difficult.

In the series of cases we encountered in Toronto, the great majority were free from scabs in from two to three weeks, and in many as early as a week or ten days, where the lesions proved abortive. Severity of eruption varied from a semi-confluent case down to a matter of one pock on the upper lip of a child in a family of five in which the three children were recovering from the disease and the parents were in the prodromal stage.

Our conclusions were that Toronto undoubtedly had an epidemic of an exceptionally mild type of smallpox, not chickenpox. Nor was it a hybrid disease. The typical full-blown pustular case was found in the same house as the mild case which presented diagnostic difficulties.

True, chickenpox existed in the city at the same time, but the emergency hospitals were retained for smallpox only. In these hospitals the well-marked cases were cared for in the same wards with the mild ones, without any cross infection. It was unquestionably smallpox in varying degrees of severity, with a greater percentage of the mild type. To call it a hybrid disease is, in our opinion, an effort to provide an excuse for errors in diagnosis. It may have been a source of consolation to some who had difficulties in diagnosis to hope that this was a hybrid disease, something that had never before been known to the medical profession, but there is no evidence to support such a theory.

There were in all more than 3,000 cases re-

ported to the Department, and I doubt not that there were quite that number of unreported cases so that we evidently had between 6,000 and 10,000 cases of this very mild type, which had distributed itself all over the city before it was recognized as smallpox, and in all these cases there was not one single death that we could attribute to the toxemia of smallpox. There were a few deaths from complications of bronchitis, broncho-pneumonia and pneumonia.

**Laboratory Diagnosis of Smallpox.**—It must be apparent that if we hope to avoid extensive outbreaks of this mild form of smallpox, we must be more painstaking in our diagnosis, and the diagnostician from the Department of Health in all cities should require to see all cases of so-called chickenpox occurring in the adult, in consultation with the attending physician. The possibilities of the laboratories helping out the diagnostician in the future, seem quite promising, as demonstrated by the valuable work done by Tieche of Switzerland and Force of the University of California. Tieche, while in charge of the smallpox hospital in 1907, noticed that applying vaccine and lymph from patients with smallpox or varioloid to his own arm, induced a re-action similar to Von Pirquet's tuberculin skin re-action. It was a small matter, therefore, for him to test on his own arm lymph suspected of smallpox or varioloid, inasmuch as the contents of a vesicle of variocella gave no re-action.

Tieche urges physicians to test their own skin in this way, and if it is in a condition of allergy, like his skin, he will thus have a simple method of control, which he always carries with him. In his ten years of experience with it, this test has proved conclusive in 98% of the cases.

He describes eleven cases in which the findings were most instructive and saved all concerned from annoyance of isolation for smallpox.

He points out also that the eruption of a smallpox group usually takes a centrifugal form, spreading to the extremities, while with chickenpox the location is more centripetal, being more pronounced on the abdomen, chest and face.

To overcome the objections and the possible danger of syphilis, taking the contents of the vesicles from patients, he always takes the

precaution to have it heated to a temperature of 70°C.

The details of these laboratory methods of intra-dermal injection of smallpox vesicle contents into a previously successfully vaccinated human or rabbit, and the results obtained, will no doubt very materially aid the diagnostician. Force has fully demonstrated that rabbits, sensitized by vaccination with vaccine virus, will give a marked intra-dermal reaction to smallpox vesicle contents in 24 to 48 hours, but will not give such re-action with chickenpox vesicle contents.

One difficulty that one sees in the way, so far as an early diagnosis is concerned, is the fact that we have to wait for the full formation of the vesicle in order to get the contents with which to test the case. However, in the border-line cases, it will always be a very decided and valuable aid, particularly in the control of these milder cases.

#### SMALLPOX IN DETROIT

September, 1920

Dr. Vaughan, Commissioner of Health for Detroit, reports the following as his experience:

1. During the first six months of 1920 there were reported 678 cases of smallpox and three deaths from this cause.

2. The disease is mild. Not more than a dozen cases have been of the confluent type.

3. Only one case, a young woman with previous history of Bright's disease, died as a direct result of the toxemia of smallpox. One death was that of a young infant, another an old person, in both of whom smallpox was only incidental as a cause of death.

4. The cases require about three weeks to clear.

5. Our difficulty is not with getting physicians to report, but in detecting cases who do not go to physicians. At least a dozen full-fledged cases have walked into the Department office for diagnosis.

6. There have been very few, less than a dozen cases of smallpox, previously diagnosed as chickenpox.

7. There have been a few mistakes among physicians who have called true cases of smallpox vaccinia, and in consequence people have been unnecessarily exposed.

8. The smallpox cases are among the unvaccinated. Of 482 cases studied from April 1 to June 30, 382 were never vaccinated in their lives. Forty-four were vaccinated more

than eight years prior to the disease, 21 of these with successful scars and 23 vaccinated without a take. Twenty-five cases have been vaccinated within 8 years but without a take. Thirty-one cases were vaccinated after exposure to the disease. In 8 of this number the vaccination was successful. In 23 there was no take.

9. It is the native-born white and colored who furnish the cases. There are relatively few cases among the foreign born.

10. Of the 482 cases from April through June, there are—

178 white males,  
144 colored males,  
142 white females,  
18 colored females.

11. In proportion to population there are 10 times as many cases among colored as among white.

12. Among the white there are 25% of cases in children under ten years—

18% are from 10 to 19 years of age,  
22% are from 20 to 29,  
16% are from 30 to 39,  
19% are over 39.

13. From December, 1919, to March, 1920, 29,535 persons entering Detroit from Canada were vaccinated, mostly without previous vaccination.

14. From April 28 to July 21, two vaccination squads, each consisting of a policeman and a Health Department physician and nurse worked nightly in the downtown districts, where smallpox was most prevalent. They examined 34,900 people, and of this number 6,930 were vaccinated. The balance were able to show satisfactory scars. Very few people refused vaccination. In the territory visited about 20% were considered unprotected against smallpox.

15. The spread of smallpox in Detroit is due:

First. To a recent large influx of unvaccinated newcomers, particularly colored people from the South.

Second. To the running at large of the unreported case.

Third. To the release of vaccinated exposures whose vaccination took place too late to avert the disease.

16. A nurse with automobile service is detailed to follow up every exposure for 21 days subsequent to vaccination to make cer-

tain of a take. In case of negative result the person is re-vaccinated.

17. It has been the custom for a Health Department physician to visit every adult case of chickenpox reported. At times of unusual smallpox prevalence, every case of chickenpox is checked by our diagnosticians.

#### BORDER QUARANTINE ON ACCOUNT SMALLPOX AGAINST PROVINCE OF ONTARIO

The United States Public Health Service established quarantine at the border, and advisedly so, in charge of Surgeon C. H. Gardner.

An epidemic of smallpox of extremely mild type prevailed in Toronto and elsewhere in the Province of Ontario, from January, 1919, until May, 1920. At the beginning of the epidemic the disease was probably either unrecognized or confused with chickenpox which was prevailing coincidentally in epidemic form. It was not until November that the character of the disease was officially recognized.

About the middle of that month the number of cases reported to the City Health Officer as smallpox amounted to 368. An officer of the Service was therefore detailed to investigate the situation in order to determine what measures should be adopted to prevent the introduction of the disease into the United States.

It was found that, while the disease was assuming startling proportions in the city of Toronto, in the Province of Ontario, the number of cases was quite small although scattered over the Province in all directions. Up to this time only seven deaths had occurred from complications arising out of this cause. Chickenpox had prevailed since January, 1919, more than 100 cases being reported monthly to the Health Department.

It was decided to establish inspection stations at all the crossing points and to require that all travelers from Toronto and other infected points who did not present satisfactory evidence of having had the disease should either present a certificate of recent successful vaccination or be vaccinated at the border. The coöperation of the Immigration Service was secured through the Commissioner at Montreal, and at the beginning of the work the lay inspection of travelers was done by Inspectors of the Immigration Service. The work was opened at 7 a. m., November 26, 1919, and was continued until March 19, 1920. Each station was in charge of an Acting

Assistant Surgeon, who either supervised the quarantine work in addition to his usual duties at the station or was a temporary Acting Assistant Surgeon employed for that duty. Vaccination of travelers was done by registered nurses, employed for that duty. Six principal inspection stations were opened; being located at Buffalo, N. Y.; Niagara Falls, N. Y.; Detroit, Mich.; Port Huron, Mich.; Sault Ste. Marie, Mich.; and Ogdensburg, N. Y.

The following personnel was employed for the work at the different stations:

	Nov. and Dec.		Jan.		Feb.		Mar.	
	A. A. Surgeons	Nurses	Inspectors	A. A. Surgeons	Nurses	Inspectors	A. A. Surgeons	Nurses
Buffalo .....	1	5	4	1	6	7	1	6
Niagara Falls ..	1	5	6	1	5	6	1	5
Detroit .....	3	5*	3	12	7	3	2	7
Port Huron ...	1	4	2	1	3	4	1	4
Sault Ste. Marie	1	0	0	1	0	0	1	0
Ogdensburg ....	1	1	0	1	1	2	1	1

\*1 matron.

The following table shows the number of persons vaccinated at the border inspection stations. It represents but a small part of the total numbers vaccinated as the Canadian authorities as well as private physicians vaccinated many thousands.

These figures, however, may be taken as an index of the tide of travel at the different points, in consideration of which it may be concluded that a protective measure was effectively carried out with but little inconvenience to the great mass of the traveling public and with a minimum of interference with commercial interests.

#### NUMBER OF VACCINATIONS AT BORDER STATIONS

	Nov. 27 to Dec. 1	Dec.	Jan.	Feb.	Mar.	Tots.
Buffalo .....	481	2,299	1,507	1,531	984	6,402
Black Rock Ferry Street M. H. Office						
Niagara Falls	449	2,429	2,175	1,220	520	6,793
Upper Bridge Lever Bridge Imm. Office						
Detroit .....	1,559	9,335	10,521	4,727	3,373	29,535
Windsor Ferry Walkerville Ferry Jos. Campeau M. C. Sta. Gd. Tr. St. Office						
Port Huron.	840	2,464	2,230	1,460	1,620	8,614
Ferry Tunnel Depot						

Sault Ste.					
Marie .....	844	376	259	119	1,598
Ogdensburg.	6	265	234	189	137
Cape Vincent					979
Morristown					
Hogansburg					
Nyando					
Clayton					
Cornwall					
Alexander Bay					

Louisville  
Waddington  
Nine Substations

Total ..... 52,921

CHARLES J. HASTINGS, M. D., *Chairman.*

C. H. GARDNER, M. D.

HENRY F. VAUGHAN, M. D.



## LIST OF NEW MEMBERS

Proposed for Election to the

**A. P. H. A.**

May 1 to May 30, 1921, inclusive.

Names of Sponsors are set in **Bold Face Type**.

Names of New Members are set in **Light Face Type**.

### **MICHIGAN**

W. C. Hirn, Lansing.  
John A. Kelo, M. D., Bay City.

### **MONTANA**

Miss Wilma Felkner Haynes, Nurse, Forsyth.

### **NEW YORK**

A. G. DuMez, Washington, D. C.  
Charles Warren Hooper, M. D., Brooklyn.

### **OREGON**

Frederick D. Stricker, M. D., Health Officer,  
Portland.

### **PENNSYLVANIA**

Rev. A. Martel, Professor of Chemistry, Villanova.

Martin H. Kuntzen, State College.  
Prof. Ray V. Watkins, Principal of State College, State College.

### **WISCONSIN**

H. L. Wilson, M. D., Racine.  
F. C. Morgenroth, M. D., Racine.

### **CANADA**

A. J. Douglas, M. D., Winnipeg, Manitoba.  
Arthur Rigby, Chief Food Inspector, Winnipeg, Manitoba.

### **ECUADOR**

J. H. White, M. D., Washington, D. C.  
Carlos V. Coello, M. D., Med. Officer, U. S. P. H. S., Guayaquil.



## CONVENTIONS, CONFERENCES, MEETINGS

July 11-12, Northern Hotel, Billings, Mont.,  
Montana Public Health Association.

July 12-13, Northern Hotel, Billings, Montana,  
Montana Association for the Prevention of Tuberculosis.

July 26-28, London, England, International  
Union Against Tuberculosis Conference.

July 28, Boston, Mass., Massachusetts Association  
of Boards of Health.

August 16, Rehoboth, Del., Delaware State  
Medical Society.

August 24-26, Duluth, Minn., Minnesota  
State Medical Association.

September 1-3, Colosseum, St. Louis, Mo.,  
International Mine Rescue and First-Aid Meeting.

September 6-8, Pueblo, Colo., Colorado  
State Medical Society.

September 12-14, Hotel Deshler, Columbus,  
Ohio, Mississippi Valley Conference on  
Tuberculosis.

September 12-19, Hotel West Baden, West  
Baden Springs, Ind., American Hospital  
Association.

September 13-14, Hotel Utah, Salt Lake City,  
Utah, Utah State Medical Association.

September 13-15, Cornell University, Ithaca,  
N. Y., Annual Conference of Health Officers  
and Public Health Nurses of New  
York State.

September 13-16, Bridgeport, Conn., New  
England Water Works Association.

September 19-22, Seelbach Hotel, Louisville,  
Ky., Kentucky State Medical Association.

September 22-28, New York City, Second  
International Congress of Eugenics.

September 26-29, Montreal, Canada, Canadian  
Conference on Public Welfare.

September 26-30, Boston, Mass., National  
Safety Council.

November 14-18, New York City, American  
Public Health Association.

# EMPLOYMENT BUREAU

## HELP WANTED

Help wanted announcements will be carried free in this column until further notice. Copy goes to the printer on the 10th of each month for publication on the 20th. Mail to Boston office as early as possible.

In answering keyed advertisements, please mail replies separately to editorial office in Boston, Mass. In replying give age, professional training, salary requirements, previous positions held and three or more references.

**Wanted:** Beginning the first of September, Assistant Bacteriologist for Municipal Laboratory in a city of about 140,000 population. Must be familiar with microscopical diagnostic work, Wassermann Test, and technique involved in the analysis of milk and water. Salary \$1,200, with possibility of increase to the right person. Address Miss Marguerite Bond, Director of Laboratories, Department of Health, Bridgeport, Conn.

**Wanted:** For temporary position (four or five months), Assistant for routine laboratory work for examination of sputum for tubercle bacilli, cultures of diphtheria, smears for Gram-negative diplococci, Widal typhoid examinations and detection of albumin, sugar and casts in urine. Salary about \$100 a month. Address 448, M. L. F., care of this JOURNAL, Boston address.

**Wanted:** Laboratory Technician capable of doing ordinary city laboratory work, except Wassermanns. Salary \$1,500. Apply to Chairman, Board of Health, New Britain, Conn.

**Wanted:** An experienced bacteriologist to do teaching and experimental work in a large State College. Address 451, C. A. H., care of this JOURNAL, Boston address.

## POSITIONS WANTED

Positions wanted announcements will henceforth be carried in this column. The charge is \$2 per insertion. Copy should be received at this office by the 10th of the month.

State Health Officer, holding A. B., M. D., Dr. P. H., from standard universities, and with six years' practical experience in public health work along broad lines, desires to make a change. Experience and references furnished. Address 159, S. F. H., care of this JOURNAL, Boston address.

Graduate Nurse, having had executive experience in public health work, wishes position requiring executive ability. Address 164, H. U., care of this JOURNAL, Boston address.

Trained public health man desires administrative position. Graduate of Mass. Inst. of Technology. Municipal health officer for 14 years. Full-time expert consultant for State Board of Health for 3 years. Address 160, W. H. C., care of this JOURNAL, Boston address.

A physician, experienced in city and county public health work, administrative and clinical, with a working knowledge of sanitary engineering, now a field agent, U. S. P. H. S., will be open for engagement as city or county health officer August 15 or sooner. Can furnish references from state and federal authorities. Engagement with organization co-operating with U. S. P. H. S. preferred. Address 158, D. J. N., care of this JOURNAL, Boston address.

Bacteriologist with experience in city, state and army technical and administrative work, desires position which will offer greater opportunities for the development of the administrative side of Public Health work than the present position which he holds. Address 162, S. N. R., care of this JOURNAL, Boston address.

Sanitary Chemist of extensive experience in city, state and military sanitation, and food, drug and water-supply control, desires a position of greater responsibility and opportunity. Address 161, E. A. U., care of this JOURNAL, Boston address.

**Wanted:** Position by laboratorian experienced in routine work, hematology, blood and urine chemistry and serology. Address 163, O. S. K., care of this JOURNAL, Boston address.

**Wanted:** By a trained and experienced sanitarian, full-time health work; holds Ph. G., M. D., Dr. P. H. degrees; county, state and municipal experience, including administrative and educational phases; best of references furnished; specially trained organizer. Address 165, W. L. H., care of this JOURNAL, Boston address.

**Wanted:** Position as director of laboratories, hospital, city or group. Thirteen years' experience, eight in hospital and clinic, five in public health laboratory, three of these as director of state laboratory. Graduate M. D., standard university; member A. M. A. Address 166, L. G. A., care of this JOURNAL, Boston address.

# TRANSACTIONS OF THE CONFERENCE OF HEALTH OFFICERS AND FACULTY MEMBERS REGARDING PROBLEMS RELATING TO COUNTY HEALTH WORK.

Held at Johns Hopkins School of Hygiene and Public Health, Baltimore, Md., December 15 and 16, 1920.

A conference of health officers and faculty members regarding problems relating to county health work was held at the Johns Hopkins School of Hygiene and Public Health, Baltimore, Maryland, on December 15 and 16, 1920, at the invitation of the School of Hygiene and Public Health and the International Health Board. The following persons were present:

## Representatives of the State Health Departments

Alabama: Dr. S. W. Welch, Dr. F. W. Dershimmer.

Georgia: Dr. T. F. Abercrombie, Dr. M. F. Haygood.

Kansas: Dr. S. J. Crumbine, Dr. A. J. Warren, Dr. T. D. Tuttle.

Kentucky: Dr. A. T. McCormack, Dr. P. W. Covington.

Louisiana: Dr. Oscar Dowling.

Maryland: Dr. J. S. Fulton.

Mississippi: Dr. W. S. Leathers, Dr. P. G. Pope.

North Carolina: Dr. W. S. Rankin, Dr. K. E. Miller.

Ohio: Dr. A. W. Freeman.

South Carolina: Dr. J. A. Hayne, Dr. L. A. Riscr.

Tennessee: Dr. Olin West, Dr. E. L. Bishop.

Texas: Dr. A. P. Harrison.

Virginia: Dr. E. G. Williams, Dr. R. K. Flannagan.

West Virginia: Dr. R. T. Davis, Dr. D. M. Lewis.

## Representatives of United States Public Health Service

Surgeon-General Hugh Cumming.

Assistant Surgeons-General J. W. Scher-  
sechewsky and A. J. McLaughlin.

Surgeon L. L. Lumsden.

## Representatives of Faculty of Johns Hop- kins School of Hygiene and Public Health

Dr. C. G. Bull	Dr. R. W. Hegner
Dr. W. W. Cort	Dr. W. H. Howell
Dr. W. H. Frost	Dr. E. V. McCollum
Dr. J. S. Fulton	Sir Arthur Newsholme
Dr. J. H. Gregory	Dr. W. H. Welch

## Representatives of International Health Board

Dr. J. A. Ferrell	Dr. H. H. Howard
Dr. J. L. Hydrick	

There were present also a number of visitors and students.

A number of topics relating to county health work were discussed in open meeting and a committee was appointed to prepare a report on each topic. The committee reports were then discussed, modified and adopted. They are brief, concise and practical and are here published for the information of readers of the JOURNAL.

## REPORTS OF COMMITTEES

### I. LEGISLATIVE AND ADMINISTRATIVE MA- CHINERY ESSENTIAL FOR COUNTY HEALTH ORGANIZATION

The county health district should include any city within its limits which has less than 10,000 population. Cities of 10,000 population or more may be included by mutual agreement.

The legislation creating county health districts should conform to the provisions of the state constitution and to important court decisions affecting it and should be in accord with the governmental habits and traditions of the people.

The fundamental purpose of the legisla-  
tion should be to insure the appointment or

election of a properly qualified administra-  
tive health officer. This appointment or  
election may be by a board of health for  
the district, which board is elected or ap-  
pointed by appropriate means; by an  
*ex-officio* board of county officers; or by the  
state health officer. Wherever suitable  
means can be devised for placing the re-  
sponsibility for the election of the health  
officer upon local authorities, this course  
should be followed.

The health officer should hold office at  
the pleasure of the appointing agency, and  
should be required to furnish evidence of  
suitable training and experience. This evi-  
dence may be in the form of a license or



diploma issued by the state health authority after examination.

The health officer should be clothed with full power to enforce all sanitary laws and regulations, to make special orders and regulations for emergencies, and to take all steps necessary to prevent disease and to protect the public health. Orders and regulations of general application should be made by a local board of health or other duly qualified legislative body.

The health officer should be empowered to employ such assistants and to purchase such necessary equipment as available funds will permit, to dismiss employees, to formulate and put into effect a program of procedure for the district, and in general to perform all executive and administrative functions.

Funds for the support of the county or district health department should be provided on budget, and the usual machinery for levying taxes and for disbursement of funds should be employed. All expenditures should be audited as are other public funds.

Provision should be made by law for the receipt and deposit in the public treasury of funds contributed by voluntary agencies and these funds should be disbursed as are any other public funds.

The payment of state subsidy to local health districts should be contingent upon compliance on the part of the local district with the program of the state health authority.

The state health authority should be empowered to enforce compliance with minimum standards of organization and efficiency and to prescribe standard forms of records and reports.

A. W. FREEMAN,  
K. E. MILLER,  
J. A. HAYNE.

## II. REPORT OF COMMITTEE ON PERSONNEL AND BUDGET NECESSARY FOR COUNTY HEALTH ORGANIZATION

The immediate organization of county health departments adequate to carry on a complete and efficient program of general preventive work is possible only in counties above the average in population and wealth.

In counties where a complete organization is not now possible, demonstration units under proper supervision, or a health

officer working alone may produce demonstrable and valuable results and such demonstrations and efforts should be encouraged in all counties.

Where the population and resources of a county are sufficient to provide a complete organization this should consist of the following personnel: a county health officer, a sanitary inspector, a public health nurse, a clerical assistant.

It is absolutely necessary that suitable and attractive offices be provided for the use of the County Health Department; these should be properly furnished, and equipped with adequate filing facilities. Also of great importance is the provision of means of travel for the three members of the staff who engage in field activities.

In the majority of the counties in the Southern States the above mentioned personnel usually directs its activities, in the main, at first, to the following:

1. Educational work.
2. Control of communicable diseases.
3. Control of soil pollution.
4. Child welfare work, including the medical inspection of school children.

In other sections of the United States where different conditions obtain, these activities may be varied to meet the situation.

### Suggested Form of Budget

#### Salaries:

County health officer.....	\$ 3,000.00
Sanitary inspector .....	1,500.00
Nurse .....	1,200.00
Clerical assistant .....	900.00

#### Travel Expenses:

County health officer.....	800.00
Sanitary inspector .....	800.00
Nurse .....	800.00
Contingent fund .....	1,000.00

Total .....\$10,000.00

The county health officer, the sanitary inspector, and the nurse are expected to own the cars they use.

The above budget represents the minimum outlay for each budgetary item.

When public sentiment and available funds render possible other activities or more intensive work on any special line, additional personnel can best be added at the discretion of the county health officer

in the light of his knowledge of local conditions and needs.

The committee is of the opinion that all activities that may be helpful in creating sentiment for a full-time county health department, such as the employment of a whole-time county health officer or public health nurse, should be encouraged.

#### COMMITTEE ON PERSONNEL

DR. H. H. HOWARD      DR. A. P. HARRISON  
DR. L. A. RISER

#### COMMITTEE ON BUDGET

DR. OLIN WEST      DR. P. W. COVINGTON  
DR. P. G. POPE

#### COMMITTEE ON TOPICS AND COMMITTEES\*

DR. W. S. LEATHERS      DR. S. W. WELCH  
DR. W. S. RANKIN

### III. REPORT OF COMMITTEE ON PROGRAM FOR CONTROL OF COMMUNICABLE DISEASES

The practice in any county or any local jurisdiction must conform to state laws and regulations regarding the reporting and isolation of communicable diseases.

Reports of communicable diseases rendered in accordance with state laws and regulations should be made directly to the county health officer who should forward same to the state authorities. The original records of mortality in the county should be freely and conveniently accessible to the county health officer.

The county health officer should endeavor by every means possible to secure a prompt report of every case of reportable disease. Measures recommended to stimulate reporting are:

(a) Simplifying the reports required of physicians so that they will include only items which are essential and which are ordinarily known to the physician, namely: the diagnosis, name (of patient and householder), color, sex, age, address and date of onset of case.\*

(b) Assistance in diagnosis of doubtful and difficult cases by efficient laboratory service and by personal consultation when desired.

(c) Prompt and efficient action by the local health officer upon report of a case, thus demonstrating to physicians and householders the importance of such reports.

(d) A system of information through

schools to serve as a check on completeness of physicians' reports.

(e) Vigorous prosecution of physicians who persistently neglect or refuse to report cases as required by law.

Facilities for laboratory diagnosis should be such that specimens will be received in good condition and reports returned with sufficient promptness for administrative action. These purposes are ordinarily served by a central state laboratory with one or more branch laboratories according to facilities for transportation. For the diagnosis of diphtheria it may be advisable to utilize such municipal laboratories as may be in operation in the state. In general, establishment of a diagnostic laboratory in each county unit is not advisable in the present stage of development.

In connection with diagnostic laboratory service, the local health officer should be responsible for distributing supplies and containers to local physicians; and he should, if practicable, take release cultures.

The institution of proper control measures requires that each case of communicable disease be promptly visited by the health officer or a representative of the health organization, who is not only authorized to enforce police regulations but is thoroughly qualified to instruct the family in measures of prophylaxis. This ordinarily requires either a physician or a public health nurse.

The occurrence of a case of infectious disease affords to the health officer his best opportunity for educating the patient's family and associates in the prophylaxis not only of this particular disease but of communicable diseases in general; and the utilization of this opportunity by personal advice and distribution of literature is one of the most important features in the control of communicable diseases.

It is necessary in the control of communicable diseases to make a thorough epidemiological investigation of each case. While this will not in all cases lead to conclusions as to the source of infection, it will do so in a certain proportion of them, especially in rural communities, where the avenues of exposure are limited. The chief importance of such study is, however, that the results when carefully analyzed, enable the health officer to evaluate the various factors concerned in spreading infection as well as the efficiency of control measures; and the value of these

\*The Committees on Personnel and Budget, after conference, concluded to make a joint report. The report as submitted was not entirely acceptable to the Conference, whereupon the two Committees were sent out to revise the report and membership of the Committee was enlarged by including the members of the Committee on Topics and Committees.

records is cumulative, increasing from year to year.

While it is not yet possible, and perhaps not desirable to "standardize" procedures in epidemiological case investigation, it is practicable and important to secure more general agreement as to the fundamental items and lines of inquiry so that observations made in different areas may be compared. It is recommended, in this connection, that at least those health officers who are in close personal touch, as, for instance, those working in the same state, should attempt to follow reasonably uniform methods.

The enforcement of regulations as to the reporting and isolation of cases of communicable diseases is only one of several lines of attack. An important function of the public health organization is to make such provision as may be necessary for effective treatment, especially by furnishing diphtheria antitoxin and other specific sera and vaccine, and by otherwise encouraging their use. There should also be a sustained effort to instruct the public, especially school children, in general measures of sanitation and to inculcate such habits of personal hygiene as may reasonably be supposed to minimize the danger of spreading infection.

W. H. FROST,  
A. J. McLAUGHLIN,  
T. D. TUTTLE.

#### IV. REPORT OF COMMITTEE ON FILTH-BORNE DISEASES

Your Committee understands that its duty is to propose methods rather than measures and therefore recommends the following necessarily brief outline:

1. A survey for the purpose of determining the present and past incidence of filth-borne diseases and to ascertain the sanitary status.

2. Having obtained this fundamentally essential information, the following procedure should be instituted:

- (a) Education with reference to modes of spread of disease and measures of prevention.

- (b) Presentation of facts ascertained by the survey.

- (c) Sanitation. By this general term we mean to include the safe disposal of human excreta and the provision of a safe drinking water and an uncontaminated food supply.

- (d) Typhoid vaccination.

We especially recommend for obvious reasons that the school be made the primary point

of attack in educational activities. We further recommend that the school be made the primary point of attack in sanitation for the reasons: (1) that a very considerable percentage of infection by intestinal parasites is the result of soil pollution at schools, and (2) that sanitation of schools provides a good object lesson for the community at large. The school should also be made the center for the administration of typhoid vaccine, since by reaching the school children the program reaches the age-period containing the highest percentage of typhoid non-immunes.

T. F. ABERCROMBIE,  
E. L. BISHOP,  
M. F. HAYGOOD,  
A. J. WARREN.

#### V. REPORT OF COMMITTEE OF RESPIRATORY DISEASES

Your Committee considers the diseases in this group to be those whose principal lesion is in the upper or lower respiratory tracts, whose specific organism leaves the body briefly in the secretions of the mouth and nose, and which are characterized by coughing or sneezing.

These diseases are commonly spoken of as spray-borne and include such infections as bad colds, influenza, measles, whooping cough, tuberculosis and pneumonia.

In view of the great number of mild and unrecognized cases of these diseases, general measures for their control should be insisted on to prevent their transmission by means of excretions from the mouth and nose of infected persons. The inculcation of habits based on the following rules should be urged, particularly in our schools: Avoid common drinking cup. Don't put into the mouth fingers, pencils or other things that do not belong there. Whenever you cough or sneeze turn the head downward and cover the nose and mouth with your handkerchief.

Specific immunization by use of vaccines is recommended for whooping cough and pneumonia. There is difference of opinion as to the value of the prophylactic vaccines for colds and influenza, although it is believed that they do not do any harm.

Isolation of patients suffering from influenza, measles, whooping cough and pneumonia should be carried out. Those with whooping cough should not be confined to the house.

Concurrent disinfection of the secretion

dening which would insure a supply of the necessary food articles in season.

Education of the public concerning the necessity of pasteurizing milk in order to render it safe.

The establishment of higher standards of cleanliness in the production and handling of milk.

Education concerning the necessity of the use of some fruit juice daily in the diet of an infant which is fed pasteurized milk, or milk which is otherwise heated.

E. V. McCOLLUM,  
D. M. LEWIS.

#### VIII. REPORT OF COMMITTEE ON MATERNITY AND CHILD HYGIENE

This committee emphasizes the importance of promoting in every state, as part of the official public health work of national, state and local public health authorities, work for the protection of maternal and child life.

The committee is of the opinion that additional action is urgently needed to secure complete birth registration throughout the country.

A complete program of work for the protection of maternal and child life should ensure adequate ante-natal, obstetric and post-natal advice and assistance for every lying-in woman. To this end:

(1) The instruction of medical students in maternity work should be extended and improved.

(2) Where midwives cannot be eliminated from practice, they should be strictly regulated and supervised, and subjected to examination as to competency.

(3) There is great need in most areas for additional institutional accommodation for lying-in women, the methods of provision to be determined by local circumstances.

(4) Health centers, where not already established, should be provided, having specially in view the institution of

(a) Antenatal consultations.

(b) Infant consultations and clinics.

(5) An adequate staff of public health nurses should be provided to secure regular home visitation of mothers and infants, to cover the ante-natal, infantile and pre-school periods.

(6) There should be active educational work for the promotion of personal hy-

giene with special reference to the hygiene of infancy and childhood.

The Committee favors a carefully devised system of Federal aid extension for promoting public health work, of which measures for the protection of maternal and child life should be an important part.

ARTHUR NEWSHOLME,  
S. J. CRUMBINE,  
J. W. SCHERESCHIEWSKY.

#### IX. REPORT OF COMMITTEE ON PROGRAM FOR SCHOOL CHILDREN: CORRIGIBLE DEFECTS

A physical record card should be made out for each pupil upon his matriculation in school. This should follow him throughout his school life and should contain his complete physical history.

Systematic medical examination should be given to all school children, especially absentees, inviting neighborhood physicians to assist.

Parents or guardians should be confidentially notified of physical condition, with suggestion that child be sent to family physician or dentist.

In cases which have failed to have defects corrected intensive and individual follow-up work should be done by nurse, the health officer assisting in difficult cases.

Clinics should be established in health center or hospital, where there is one, for treatment of corrigible defects in indigent cases and cases referred by physicians. Such a clinic should be established with the coöperation of the County Medical Society, and, when possible, should be aided by the local Red Cross or other charity organizations. Clinics for conditions requiring services of a specialist should be held from time to time when necessary, such specialists to be provided by the State Board of Health or State Medical Association.

Where contagious diseases exist, and parents refuse correction or treatment, reference to juvenile court should be considered.

The Health Department should keep constant supervision over schools for detection and prevention of spread of communicable diseases. It should require a safe water supply, individual drinking cups and towels, sanitary privies of an approved type, proper ventilation, lighting and heating of school rooms.

Where organization of parent-teachers' associations or local health and welfare

leagues make them practicable, nutrition clinics, hot lunches, health chores, and other methods for training in health habits should be introduced.

The Health Department should coöperate with the County Board of Education and individual teachers for the purpose of providing an adequate course in physical education to the end that each child shall develop a health consciousness that will make him realize the value of individual good health and a health consciousness that will make him contribute to community health.

A. McCORMACK,  
L. A. RISER,  
P. G. POPE.

#### X. REPORT OF COMMITTEE ON VENEREAL DISEASES

Your Committee recognizes the importance of the question under consideration and cannot better express its convictions than by quoting a paragraph from a recent message of a Southern governor: "These (venereal) diseases are striking at the very foundation of our social system, and their control is the imperative call of the hour."

We know that venereal diseases are perhaps more thoroughly distributed throughout the country than any other communicable disease and that those suffering from these diseases are rarely properly treated, therefore, we believe the state, county and municipal authorities should acknowledge their obligations and coöperate in every way with the state and federal authorities and with other recognized agencies in the eradication of these diseases, and we recommend the following:

It is the responsibility of the State to provide:

- (1) The necessary legislation.
- (2) Ample funds for—
  - (a) Laboratory investigation and diagnosis.
  - (b) The treatment of the indigent and those confined in state institutions.
  - (c) Campaigns of education in the rural districts as well as in incorporated units.
  - (d) General supervision and expert assistance for municipal and county authorities.

It is the responsibility of the county and municipality:

(1) To coöperate with state and federal authorities.

(2) To enforce state and federal laws and regulations.

(3) To adopt, promulgate and enforce such additional legislation as may be deemed necessary.

(4) To provide institutional care for the delinquents who are venereally infected.

All states represented in this conference have laws, or regulations having the force and effect of laws, requiring venereal diseases to be reported. They have laws, also, for the compulsory examination and detention of persons reasonably suspected of being venereal disease carriers.

The task of curing venereal diseases is to be performed by the physician, but he must have the moral support of the laymen if these diseases are to be eliminated. When the public wants the work well done it will support and demand that all measures necessary for the control, cure and thorough elimination of venereal diseases be carried out.

The accomplishment of this task means education, re-education, enforcement of laws and expenditure of large sums of money under judicial direction of the health departments.

OSCAR DOWLING,  
W. M. BRUNET.

#### XI. REPORT OF COMMITTEE ON EDUCATION AND PUBLICITY

In formulating policies and methods of education and publicity your Committee suggests that the following points should be considered:

1. Educational methods which seek to change the habits of a people are not likely to secure lasting results in a short time and therefore should be planned to operate over a period of many years.

2. The education of the following groups is essential:

- (a) Practicing physicians—lectures and demonstrations to physicians only.
- (b) Medical students—proper courses in medical departments.
- (c) Student nurses—special public health work.
- (d) School teachers—vacation courses.

(e) Normal school and college students—proper courses in curricula.

(f) School children—adequate courses in primary and secondary schools.

3. Before beginning work the following steps should be taken:

(a) A study of the disease incidence.

(b) A psychological study of the people.

(c) Formation of an educational program which will meet the problems disclosed by these surveys.

4. Experiments should be made to determine the value of the different methods of education. Consideration should be given to the possibility of adapting to public health education those methods of commercial advertising which have proved valuable.

5. In the evaluation of any method a discount should be made for the general improvement in the health of a community which would have occurred if no work had been undertaken.

6. There should be organized a central educational agency for the state which will coöperate with the county units. The service rendered the county will depend upon the amount appropriated by each.

7. The director of the central agency should be well qualified to plan and carry out both health programs and educational work.

8. The determination by the central agency of the health appropriations which could be used with advantage for educational work.

9. The education and re-education of health officers (at the expense of the state or county budgets) by attendance at conference, institutional courses and successful demonstrations.

F. W. DERSHIMER,  
M. F. HAYGOOD,  
J. L. HYDRICK.

## XII. REPORT OF COMMITTEE ON PERSONAL HYGIENE

Personal hygiene may be understood as the application of the principles of physiology and pathology to the preservation of the normal health of the individual, and the formulation as far as possible of rules of right living in regard to such matters as cleanliness; physical exercise; the care of the eyes, of the teeth, and of the skin; the proper conditioning of the air and illumina-

tion in living rooms; and the avoidance of excesses in muscular and mental activity.

So far as sound knowledge in these matters can be taught to the public so far will the level of the general health be raised and the incidence of disease and invalidism be reduced.

Instruction in such matters should not be left to unofficial agencies or to private initiative since such efforts are sporadic and moreover frequently exhibit a tendency toward an unfortunate kind of propagandism. Systematic instruction in personal hygiene should constitute a feature of the general campaign of education in public health work and should be regarded as one of the essential duties of a county health officer.

The way in which such instruction may be given must vary with conditions, but it is suggested that there should be a maintained effort to establish courses of a simple character in the schools, to provide for home instruction and inspection through the public health nurse, and to disseminate general information by means of occasional lectures, exhibits, etc. It is also suggested that in view of the general lack of reliable information on such topics among the medical profession, an effort should be made to provide adequate courses of instruction in the medical schools.

W. H. HOWELL,  
R. T. DAVIS.

## XIII. REPORT OF COMMITTEE ON MEASUREMENT OF RESULTS IN PUBLIC HEALTH WORK

The only reliable basis for evaluating the results of public health work is that furnished by an accurate and complete system of vital statistics, including statistics of birth, deaths and morbidity. These statistics must cover a sufficiently long period of years and be supplemented by similar statistics for comparable units of population in other parts of the country.

The health officer should be in possession of all available information concerning the composition, character, habits and environment of his population. General information of this character may be obtained from the decennial census reports, but other available sources of information such as state and school censuses and local directories should be located and utilized. For many purposes these must be supplemented by more detailed data which can be secured

only by special sanitary surveys. These surveys may often be limited to representative groups of the population. Without this basic population data the statistics of morbidity and mortality are often without significance.

Accurate and complete reports of births and deaths are a minimum requirement and the individual detailed records of births and deaths should be fully and conveniently accessible to the county health officer.

Morbidity records should include not merely the bare reports of cases, but careful, detailed and uniform epidemiological data. These can be obtained only by personal investigation of the cases reported.

These facts afford a basis for measurement of public health work in a community, the reliability of the measurement being proportionate to the original accuracy, detail and extent of the data.

W. H. FROST.

K. E. MILLER.

#### XIV. REPORT OF COMMITTEE ON METHOD OF HANDLING FUNDS

Procedure in certain states: The coöperative health campaigns in Texas and some other states derive their funds from three sources as follows:

1/2 from the county .....	\$ 5,000.00
1/4 from the state .....	2,500.00
1/4 from the International Health Board .....	2,500.00
Total .....	\$10,000.00

All expenditures are made under the provisions of a definite budget, the items of the budget being so arranged that the above ratios are maintained in the expenditures.

The \$5,000.00 derived from the county remains in the county treasury and is expended under the laws and regulations which govern the expenditure of county funds for any purpose. Triplicate vouchers are used for each expenditure of the funds provided by the county, one voucher being sent to the state health officer, the remaining two being retained by the county auditor and county health officer respectively.

The fund derived from the state and from the International Health Board in equal proportion is deposited in the state treasury. This fund is expended under the laws and regulations which govern the expenditure

of state funds. Triplicate vouchers are also used in this case, one being sent to the state auditor, one to the state health officer and the third being retained by the county health officer.

At the end of the fiscal year unexpended balances of the money appropriated by the county are in the county treasury and must be reappropriated to apply on a new budget before they can be used in county health work.

Any unexpended balance remaining at the end of the year, of the fund derived from the state and the International Health Board is refunded to the state and International Health Board respectively in equal proportion.

It would seem that the triplicate voucher system would provide satisfactorily also for the expenditure of funds from any source, in which case one voucher would go to the source of the funds and one each of the two remaining vouchers be retained by the state and county health officers respectively. All vouchers must be approved by both the state and county health officers.

This system agrees in principle with that in use in the West Indies, with which section I am familiar and for which I am responsible. It has proven satisfactory in operation there and I am not in a position to recommend any change which would effect improvement.

Variations in the method outlined above are necessary to meet the different conditions encountered in the various states:

H. H. HOWARD.

#### NOTE.

In certain instances the United States Public Health service, the American Red Cross, the National Tuberculosis Association, the International Health Board, and other agencies coöperate with the states and counties in supporting county health budgets. The bases of coöperation vary widely. There is no uniformity with reference to the number of coöperating agencies or to the amount of their contributions. The funds furnished by the various agencies range from \$100 to \$2,500 per year.

JOHN A. FERRELL.

#### XV. REPORT OF COMMITTEE ON INCREASING THE SUPPLY OF COMPETENT COUNTY HEALTH OFFICERS

The Committee begs to submit the following report:

No time should be lost in endeavoring to secure adequate pecuniary compensation for county health officers and their staffs.

It is idle to expect that competent men and women, in sufficient numbers, will seek

to qualify themselves for such positions unless the financial rewards are more nearly commensurate with the educational and administrative qualifications which are demanded than is now generally the case.

The position of county health officer should be removed from the field of politics in order to secure such tenure of office and certainty of employment as will make the career of the public health officer comparable in this respect to any other professional career.

To attain these ends—better compensation and security of tenure—efforts should be made, particularly by significant demonstrations, to educate not only legislative and executive authorities, but also the general public, including the medical profession, to an appreciation of the benefits which a good county health organization can confer upon the community in the promotion of health, the prevention of disease and improved living and working conditions.

The most important contribution which voluntary organizations can make to the health movement is to aid by coöperation with the health authorities in this educational and demonstrative work in order to create a public sentiment demanding and supporting proper standards of official health organization and demonstration.

In order to secure a supply of competent health officers, now woefully lacking, to meet an ever-increasing demand, every effort should be made to bring to the attention of present and prospective members of the medical profession, especially hospital interns and other recent graduates, and above all medical students, the opportunities and attractions of a career in public health.

To this end, as well as for other reasons, it is urged that a department of hygiene or preventive medicine be established in every medical school where it can be properly supported, or failing this, a lectureship, not so much with the idea of adding a new burden to an already overweighed curriculum, as to ensure to all students at least some presentation of the scope and subject matter of sanitary science and public health work, to furnish more thorough elective courses in these subjects to those desiring them, and most important of all to serve as a leaven to introduce throughout medical teaching, particularly in the clinics, the idea

of prevention as not less important than diagnosis and treatment.

In view of the long duration and considerable cost of the preliminary and professional education now required for entrance to the medical profession an urgent, immediate need would be partially met by the establishment by public spirited philanthropists of stipends, scholarships and fellowships to enable selected promising medical graduates to pursue for a year or more specialized training to fit them for public health work. The extension of such financial aid for further study and practical training to selected young health officers would serve an equally useful purpose.

There is great need of increased and improved educational opportunities for the special training of those desiring to devote themselves to public health work.

To meet the various needs it is desirable that there should be:

- (1) A few schools of hygiene and public health of a high order, connected with universities. These should have their own faculties and departments, where thorough instruction and opportunities for research should be provided.

- (2) Provision in many universities, medical schools, and engineering schools, of special courses designed to meet the needs of those preparing for public health work.

- (3) To meet local needs short practical courses conducted by state, and in some instances by municipal or other, departments of health, with the coöperation, where practicable, of medical school and universities.

To universities and medical schools which receive their support from the state, the health authorities may well make representations urging the establishment of courses in public health.

A most useful purpose would be served, especially for the practical training of county health officers, by the establishment of county health units so organized and conducted as to permit the reception of a certain number of workers to serve a kind of apprenticeship in the duties of a county health officer. Such demonstration centers in cities and counties would afford for the prospective health officer opportunities similar to those of a hospital internship for



a medical practitioner, and they are equally important.

Finally, your Committee urges that the health of the people is a matter of national concern, and it is difficult to see what argument can be advanced in support of the extension of Federal aid in the fields of education, of agriculture, and of stock raising, which does not apply with at least equal force to Federal aid to the states in the preservation of health, the control of

disease, and the saving of human lives. It is obvious that there are various ways in which the valuable aid already given by the Federal government through the Public Health Service in stimulating public health instruction and developing rural sanitation could be further extended in promoting objects covered by this report.

HUGH S. CUMMING,  
WILLIAM H. WELCH,  
J. W. SCHERESCHEWSKY.



## PUBLIC HEALTH NOTES

Abstracts by D. GREENE, M. D., M. P. HORWOOD, Ph.D., JAMES A. TOBEY and HOMER N. CALVER.

**International Conference on Child Welfare.**—Such a conference is to be held in Brussels July 18-21, 1921, under the auspices of the Belgian Government, according to information received by the Children's Bureau of the U. S. Department of Labor.

American participation in the Conference is much desired by the Belgian Committee on Organization.

The object of the conference is the discussion of a series of questions dealing with the physical and moral welfare of children, and the rearing of infants. The discussion will proceed under four general heads, (1) Juvenile Delinquents and Juvenile Courts, (2) Abnormal Children, (3) Social Hygiene of Childhood, and (4) War Orphans. Foreign and Belgian experts will prepare reports on child welfare work in their own countries with special reference to the questions on the list. These reports will be printed and distributed in advance to all who join the conference.

It is hoped also to discuss at the conference the question of creating an international organization for child welfare. Steps were taken toward the formation of such an organization following the first International Conference of Child Welfare, in 1913, held also in Brussels, but the war prevented the carrying out of the plan.



**Etiology of Acute Inflammation of Nose, Pharynx and Tonsils.**—An exceedingly careful and scientific study of the etiology of inflammations of the upper respiratory tract has been made by Mudd, Grant and Goldman. A

number of factors or causes are held to be responsible for these infections. (1) The filterable virus of Kruse and Foster induces apparently a clinical entity, a type of acute coryza. According to experiments of its discoverers, this is of relatively high virulence and may cause infection practically independently of the action of exciting factors. (2) Various bacteria, including the pneumococcus, streptococci, *B. rhinitis*, Friedlander's bacillus, *B. influenza*, and possibly others seem to be capable of inducing infection of variable extent, duration and symptomatology. (3) Protein sensitization, the basis of vasomotor rhinitis and of true bronchial asthma, the underlying cause also of a relatively infrequent subgroup of acute recurrent "colds." (4) Various systemic diseases, drugs, mechanical and chemical irritants, chronic nasal affections and reflex neuroses. One factor by which resistance to bacterial infection may be lowered is excessive chilling. The authors' experiments have shown that chilling of the body surface causes reflex vasoconstriction and ischemia in the mucous membranes of the nasal cavity, post-nasal space and palate, oropharynx, nasopharynx and palatine tonsils. It seems not improbable that the ischemia may be the means of lowering local resistance. In other instances another mechanism is doubtless responsible for colds, that is, crowding in overheated places followed by emergence into a cold atmosphere. This view regarding ischemia as the means by which local resistance is lowered is in direct opposition to a theory widely current that congestion of the upper respiratory mucous membranes is responsible for the

local lowering of resistance.—S. Mudd, S. B. Grant and A. Goldman, *Jour. of Lab. and Clin. Med.*, Jan, Feb., and Mar., 1921.—(D. G.)



**Nursing in Spain, the Balkans and Poland.**—Four hundred Russian nurses have been found among the refugees in Constantinople from the Crimea and are being organized into nursing units for service among the thousands of refugees. The nurses are being sent to the various refugee colonies and paid for their services. The first group was sent to the Balkan camps at Cattaro and Ragusa, where the immediate need for nurses was imperative. A small group is being held at Constantinople for emergency work.

To meet the need for nurses in Spain courses of instruction have been inaugurated there under the Spanish Red Cross. In addition to the courses offered in the capital, others have been organized at Toledo and Segovia. Civil and military authorities are evincing much interest in the movement to provide more nurses for hospitals which are understaffed.

Seven hundred Polish women have been awarded certificates after successfully passing examinations in home hygiene and nursing. The examinations were conducted at the various centers established throughout the country by the American Red Cross. In three months, 1,300 women have attended these courses and have taken a keen interest in the work. Health lectures are considered one of the most effective measures in the campaign against epidemic diseases which have swept Poland.—(J. A. T.)



**The World's Lepers.**—The recent announcements in reference to the cure of leprosy with refined chaulmoogra oil have led to the compilation of interesting statistics. It is estimated that there are 3,000,000 lepers in the world today. Of these 2,000,000 are in China, 200,000 in India, and 20,000 in Japan. The United States has an important leper problem on her hands in Hawaii and the Philippines.—*Medical Record*, April 23, 1921. (J. A. T.)



**Malnutrition.**—The notion that the children of the poor are necessarily the worst fed is combated, the authors asserting the greatest amount of malnutrition is to be found among families of the middle class of native birth. The foreigners as well as

the well-to-do show fewer evidences of under-feeding.—Alan Brown and G. Albert Davis, *Canadian Public Health Journal*, April, 1921. (M. B. D.)



**Statistics of Syphilis and Third Revision of the International List of Causes of Death.**—The third Conference for the Revision of the International list of Causes of Death held in Paris during October, 1920, decided that for the ensuing decade reports of deaths caused by complications or later stages of localized syphilis should be classified under titles for diseases of the various organs in which the syphilitic lesion is manifest. If American registration offices decide to adhere strictly to the requirements of the revised list, it will be necessary to classify under "diseases of the brain" every report of cerebral syphilis; under "cirrhosis of the liver" every report of syphilitic cirrhosis; and under "diseases of the respiratory system" fatal cases of syphilitic infection of the trachea, bronchi, or lungs.

For many years, all syphilis whether localized or not has been classified as syphilis. Under the new practice, it will not be possible to ascertain the total number of deaths reported as due to this disease unless registrars show separately for each of these scattered titles in the International List the number of syphilis deaths included. This scattering of syphilis entries over many titles of the International List will involve much labor for the registrar and for the person consulting the reports for material comparable with the statistics of total syphilis mortality in past years.

The decision of the International Conference on this point was made over the earnest protest of the American delegation, who had the support of the delegates of several other countries. If the Manual of the International List, based upon this third revision, is to be used by American registrars strictly in accordance with the practice prescribed therein, the total mortality from syphilis can be determined only if suitable sub-groups are arranged for the several titles receiving these new entries. It is much to be hoped that health officers and registrars will keep this requirement in mind and make possible a complete count of all the deaths due to syphilis that are reported to them.—*Statistical Bulletin XI*—2, Feb., 1921.

**The Belgian Method of House Ventilation.**—Professor Spehl has just published an important work, in connection with the campaign against tuberculosis, in which he emphasises the necessity of good ventilation in all dwelling places. It would seem to be an established fact that displacement of air in a vertical direction must be regarded as a defective arrangement. He urges that the Belgian system of natural, horizontal aeration—so-called differential aeration—should be generally adopted. This Belgian system was recommended before the war by M. Knapen and has already been made compulsory by the hygienic regulations of Paris. The Knapen method of ventilation provides for openings of varying size in the walls of the several sides of the building, whence the term “differential aeration.” These openings thus located at various points avoid harmful currents of air, for two reasons: in the first place, the openings do not penetrate the walls horizontally, but obliquely; that is, beginning on the exterior wall they incline upward as they approach the interior wall. The result is that the force of the air is broken, so that it does not fall on one in such “brutal” fashion. The air is tempered by striking the walls of the ventilating conduit before it enters the dwelling. Furthermore, the openings that admit the air from outside are not of the same size as the interior openings, as already stated. That is the main point. The currents of air that enter the rooms, instead of being sucked in through conduits of the same size throughout, are tempered by the fact that the exterior and the interior openings are of different dimensions and are located at different levels. Consequently, in place of a draught that is feared, a slight but constant mixing of the air is produced, by which means a regeneration of the whole atmosphere is brought about, as the fresh currents pass through from the north to the south or from the east to the west. Spehl claims that this Belgian system of differential horizontal ventilation is, at present, the best method of ventilating all classes of apartments, as it replaces automatically the foul dead air. Then, again, it has the great advantage that it does not bring quantities of dust into the apartments, as does the opening of windows and most ventilators.

This may be regarded as one of the outstanding features of the invention.—*Medical Officer*, Jan. 29, 1921, 47. (D. G.)

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**Anthrax From Shaving Brushes.**—The British Ministry of Health has called attention to the recent occurrence of cases of anthrax. Infection has once more been traced to shaving brushes in spite of the steps taken to prevent the distribution of Japanese brushes imported before the prohibition order took effect. It is recommended that these brushes be returned to the wholesale dealer. For the further protection of the public the Ministry has indicated a method of disinfection of shaving brushes. The brush should be: (a) thoroughly washed with soap and warm water containing a little washing soda and then allowed to stand for half an hour in warm water containing a little soda; (b) placed in a warm solution of formaldehyde (1 part of 40% formalin and 16 parts of water—a 2½% solution of formaldehyde) for half an hour; (c) allowed to dry. It is, however, pointed out that complete sterilization of brushes is impracticable; the method mentioned above frees the exposed part of the hair from infection, but does not affect spores embedded in the handle of the brush. The following figures have been supplied by the Medical Inspector of Factories with regard to the results of various forms of treatment in 800 cases of cutaneous anthrax (excluding the erysipelatous form) in Great Britain:

Treatment	Mortality		
	Cases	Deaths	percent
Serum only .....	200	8	4.0
Excision only .....	397	44	11.1
Excision and serum...	174	25	14.4
No special treatment..	29	14	48.3
Total .....	800	91	11.4

It is also stated that in general the best treatment for a case of anthrax is physiological rest of the part affected, combined with intravenous injection of anti-anthrax serum; and that there is always difficulty in estimating the efficacy of different methods of treatment of a malady such as anthrax, which is capable of undergoing spontaneous cure.—*Lancet*, Feb. 5, 1921, 289. (D. G.)

## STATE HEALTH NOTES— LEGISLATION

*National. Congressional Procedure.*—From report of National Health Council indicating action up to May 9, 1921.

The creation of a new Department, A Federal Department of Public Welfare, to be brought about by the reorganization of numerous existing governmental functions, is specifically requested by the President in his message to Congress. His policy regarding the proposed Department will be advanced in Congress under selected leadership. Brigadier General Charles E. Sawyer, the President's physician, has been specially authorized by the President to formulate detailed plans on the subject. These plans were presented, in part, to the Senate Committee on Education and Labor at a hearing held on April 21st. General Sawyer told the Committee that the plans, drawn up after study and investigation, embody the outline which, broadly speaking, creates the following divisions to be under the Secretary of Public Welfare and four assistant secretaries:

*Education.*—To embrace all duties pertaining to the education of the maimed and crippled; coöperation with the states in vocational training, physical education, etc., and all educational work now conducted in the various departments of the Government.

*Public Health.*—All duties given by statute to the Public Health Service, including research, quarantine, sanitation, hospitalization and special health activities now in many government departments.

*Social Service.*—All duties of this character now performed by numerous departments, including social hygiene, special work for women and children, employee's compensation, employment services, etc.

*Veteran Service Administration.*—Duty of considering all matters relating to compensation, insurance, allotments, personnel and equipment, vocational training, etc.—pertaining to the rehabilitation of ex-service men.

The above proposed functions of the new Department, outlined by General Sawyer, apparently met with the approval of all members of the Committee on Education who were present. Senator Kenyon, Chairman of the Committee, is to confer further with Dr. Sawyer for the purpose of drafting

a bill which will set out the President's plans. It was urged that the Bureau of Efficiency prepare figures to show what saving of money will be accomplished by this new department, presumably an important element in accomplishing the passage of the bill in Senate and House.

The National Health Council is working in close coöperation with Dr. Sawyer on the health aspects of this plan.

*War Risk Insurance Bureau and Public Health Service.*—The first actual consolidation of governmental bureaus under the new administration has been made by Secretary of the Treasury Mellon. This was done by an order directing the Bureau of War Risk Insurance to take over from the Public Health Service the greater portion of the work of treating and caring for disabled veterans of the World War. Each of these bureaus is in the Treasury Department. The Bureau is to take over work, offices and personnel of the Service connected with the medical treatment of disabled war veterans, with the exception of the operation of hospitals and dispensaries. The Bureau will take over the work of finding suitable hospital beds and the contracts with private institutions. It will establish an adequate force of medical inspectors to insure proper treatment of patients, wherever they may be placed. The Bureau is to send patients to P. H. Service Hospitals, National Soldiers' homes or hospitals operated by the Army or Navy, and to private institutions.

### BILLS RELATING TO REORGANIZATION OF THE FEDERAL GOVERNMENT

S. 408. Establishment of Department of Social Welfare. Introduced by Mr. Kenyon April 12, 1921. Referred to the Committee on Education and Labor. The bill provides for the addition of a new executive department to the government known as the Department of Social Welfare with a cabinet officer and an assistant secretary. It transfers from the Department of Treasury the Public Health Service and the Hygienic Laboratory; from the Department of Interior the Bureau of Education; from the Department of Labor the Children's Bureau, the Bureau of Industrial Housing and Transportation, and the U. S. Employment Service; and from the Department of Agriculture the Office of Home Economics of

is designated and he is given a medical staff and other necessary employees to conduct the work and duties pertaining to the care of former service men.

S. 1607, H. R. 5837, Department of Public Welfare. Introduced in the Senate by Mr. Kenyon and in the House by Mr. Fess. Referred to Committee on Education and Labor in the Senate and the Committee on Education in the House.

There is proposed a new cabinet department with a secretary at \$12,000 a year and four assistant secretaries at \$5,000 a year each, who shall each be in charge of one of the following divisions: 1. Education; 2. Public Health; 3. Social Service; 4. Veteran Service.

The following existing offices are abolished and their powers and duties transferred to the new department:—

Director, Bureau of War Risk Insurance, Surgeon General, Public Health Service, Commissioner of Education, Chief, Assistant Chief, and Private Secretary to the Chief, Children's Bureau, Federal Board for Vocational Education, Board of Managers, National Home for Disabled Volunteer Soldiers.

The following bureaus are transferred to the new department:—

Children's Bureau (Labor), Bureau of War Risk Insurance (Treasury), Public Health Service (Treasury), Office of Education (Interior), Bureau of Pensions (Interior), Freedmen's Hospital, National Home for Disabled Volunteer Soldiers.

U. S. Employees' Compensation Commission (number of commissioners reduced to one).  
Columbia Institution for the Deaf (Interior) functions.  
St. Elizabeth's Hospital (Interior) functions.  
The Secretary of Public Welfare may allocate the functions of the various bureaus within the proposed department.

S. Joint Res. 30. Additional Member on the Smoot-Reavis Committee. Introduced by Mr. Smoot. Senate and House have passed a joint resolution authorizing the President to appoint a representative to act for the executive on the Joint Committee

the States Relations Service. The U. S. Employees' Compensation Commission, which is now an independent body, is also taken over by the proposed department.

H. R. 7, Establishment of Department of Education. Introduced by Mr. Tower, April 11, 1921. Referred to Committee on Education. This is the Smith-Towner Bill, providing for the establishment of a Department of Education. The bill has not yet been introduced in the Senate at this session of Congress. The proposed new department will undertake research in literacy, immigrant education, public school education, including health education, recreation and sanitation; preparation and supply of competent teachers for public schools; higher education and in such other fields as may require attention. About \$85,000,000 are appropriated, \$20,000,000 being for physical education and instruction in principles of health and sanitation, which is to be used for aiding the states, but each state aided must match the appropriation of the Government from its own funds.

The bill authorizes the transfer of the Bureau of Education and such other offices, bureaus, divisions, boards, or branches of the government as Congress may deter-

S. 526, Establishment of Department of Health. Introduced by Mr. Owen, April 12, 1921. Referred to Committee on Appropriations. This measure has been introduced in Congress at regular sessions for the last ten years. It contemplates the establishment of a new executive department known as the Department of Health. It provides for a head of the department known as the Secretary of Health and all the health activities of the government shall be transferred to his jurisdiction. An assistant Secretary of Health, who shall be a skilled sanitarian, is also designated.

H. R. 3, Establishment of a Veterans' Bureau. Introduced by Mr. Sweet, April 11, 1921. Referred to Committee on Interstate and Foreign Commerce. The measure provides for the establishment of a Veterans' Bureau in the Treasury Department to supplant the Bureau of War Risk Insurance, the Vocational Education Bureau, and the hospitalization work of former disabled service men now being conducted by the U. S. Public Health Service.

A director at a salary of \$10,000 per year

on Reorganization. The President has appointed Mr. Walter Brown of Toledo, Ohio. This is the Smoot-Reavis Committee and the additional member is selected at the request of the President. It is not definitely known to what extent this reorganization committee will act. No hearings have as yet been held.

#### BILLS RELATING TO EXTENSION OF HEALTH FUNCTIONS OF THE GOVERNMENT

S. 1039. Protection of Maternity and Infancy (Sheppard-Towner Amendment). Introduced by Senator Moses of New Hampshire, April 28, 1921. Referred to the Committee on Education and Labor. This is an amendment to the so-called Sheppard-Towner bill, which is now before Congress, having been re-introduced at the present session by Senator Sheppard. It is a complete substitute for the Sheppard-Towner measure, providing for coöperation between the Federal Government and the county governments, instead of between the Federal Government and the state governments. The Moses plan, as outlined in this amendment, extends to any county government in the country the option of providing \$5,000 for the equipping of a county hospital, the Federal Government to furnish a similar amount. A sum of \$5,000 shall be provided annually both by the Federal and county governments for the maintenance of such hospitals. Care of maternity cases and treatment of children shall be given preference in these hospitals. Courses in elementary nursing training of one year's duration would be given in these hospitals. The proposed coöperation with the state governments as outlined in the Sheppard-Towner bill is eliminated altogether.

The bill appropriates \$10,000 for the administration of the Act, under the direction of the Surgeon General of the Public Health Service.

The President is given the power to transfer to the new department in addition to the above any other educational, health or social welfare activity of any branch of the government. Any controversy as to relative functions of the new department and any other are also to be decided by the President.

Mr. Courtenay Dinwiddie, who has followed the proceedings closely gives these notes of the hearing of May 5, 1921, before

the Senate Committee on Education and Labor.

"Opponents of the Bill heard by the Committee were in charge of Miss Kilbreth of the National League Opposed to Woman Suffrage. They included representatives of the Medical Liberty Group, a spokesman of the physicians of Fitchburg, Mass., and one or two individuals. The arguments were closely similar to those at previous hearings. The advocates were Dr. S. Josephine Baker, Dr. R. A. Bolt, Dr. Ellen C. Potter, and Dr. Florence L. McKay.

"Questions by the Committee were frequent and indicated a general friendly attitude, except that Senator Phipps of Colorado suspected there might be danger of propaganda for birth control if the bill passed."

H. R. 22. The Promotion of Physical Education. Introduced by Mr. Fess, April 11, 1921. Referred to the Committee on Education. This measure provides for the promotion of physical education in the United States, through coöperation with the states, in the preparation and payment of supervisors and teachers in physical education, including health supervisors and school nurses. The sum of \$10,000,000 is appropriated for the fiscal year ending June 30, 1922; and for each subsequent year an amount sufficient to allot \$1 per child of school age to each state accepting the provisions of the act. Each state must designate an authority who shall organize the physical education work to meet the needs of all the children of the state from six to 18 years of age. An additional sum of \$300,000 is appropriated for payment of salaries in the District of Columbia; and \$200,000 is allowed to the U. S. Public Health Service for carrying out certain coöperative, research and demonstration phases of the work. The Bureau of Education of the Department of Interior is to establish a Division of Physical Education to administer the act. The same bill was introduced in the Senate by Senator Capper of Kansas. The number of the Senate bill is Senate 416.

H. R. 2287. The Extension of Vocational Rehabilitation, to ex-service men. Introduced by Mr. Rogers, April 11, 1921. Referred to Committee on Education. This bill makes the terms of the existing Federal law on the subject of Vocational Rehabilitation

tion of Disabled Persons, discharged from military and naval forces, more liberal, extending the benefits of vocational training where the earning capacity of the former service men have been impaired to the extent of at least 10 percent.

H. R. 19. Extension of Vocational Training to Widows of ex-service men. Introduced by Mr. Newton, April 11, 1921. Referred to the Committee on Education.

This is an amendment to the Vocational Training Act which extends the vocational training to the widow and child of a disabled service man, who has died as a result of injuries or wounds incurred in the war. It fixes the limit to be paid to any such person \$100 per month for single persons without dependents and \$120 per month for persons with dependents. No child shall be paid more than \$50 per month.

H. R. 21. The Advancement of Vocational Education in Civil Population. Introduced by Mr. Fess, April 11, 1921. Referred to the Committee on Education. The measure provides a federal appropriation to cooperate with the various states in the promotion of vocational education in agriculture and trades and industries, and for the preparation of teachers of vocational subjects. The sum of \$500,000 is appropriated for the fiscal year ending June 30, 1922, and for each subsequent year for nine years an amount equal to the amount appropriated for the preceding year, plus \$250,000. For the fiscal year ending June 30, 1931, \$3,000,000 is appropriated and annually thereafter. Each state in order to secure the benefits of this act must organize a State Board of Vocational Education and prepare plans for carrying out the education, these plans to be submitted to the Federal Board of Vocational Training.

S. 525. Establishment of a Sanitary Corps for the Public Health Service. Introduced by Mr. Owen, April 12, 1921. This bill proposes a Reserve Corps for duty in the Public Health Service in time of national emergency. It authorizes the President to appoint and commission such officers, who shall be sanitarians.

#### BILLS RELATING TO OTHER MEDICAL, HOSPITAL AND PUBLIC HEALTH MATTERS

H. R. 116. Issuance of Doctor's Licenses to Practice in All States of the Union. In-

troduced by Mr. Mason, April 11, 1921. Referred to the Committee on Interstate and Foreign Commerce. The bill gives the Secretary of the Interior the authority to issue to doctors of medicine licenses to practice medicine in the states of the Union without discrimination between states. Any physician, according to this bill, who has become a practicing doctor in any state of the Union and has a license duly issued by the licensing power of that state may apply to the Secretary of Interior and secure for the sum of \$10 a license giving him the right to practice in every state.

S. 206. Prohibition of Exportation of Opium. Introduced by Senator Jones of Washington. This measure is an amendment to the existing law prohibiting the importation of opium into the United States, and it provides against the exportation of any opium, cocaine or salt derivative, to any country except under certain restrictions. It passed the House at the last session. A similar bill has also been introduced in the House by Mr. Miller of Washington. It is H. R. 2193.

H. R. 65. Prohibits Transportation of Poisons Without Label. Introduced by Mr. French, April 11, 1921. Referred to the Committee on Interstate and Foreign Commerce. The bill is an amendment to the Pure Food and Drug Act which provides that the shipment of any poison direct to a consumer from one state to another without being placed in a container bearing the word "poison" and without containing a label giving at least one suitable antidote shall be a violation of the act, punishable by the penalties already fixed.

H. R. 4109. Destruction of animals affected with rabies. Introduced by Mr. Baker, April 18, 1921. Referred to the Committee on Appropriations. The measure appropriates the sum of \$200,000 to the Secretary of Agriculture to be used for the destruction of coyotes, California lions, cougars, wildcats and all other wild animals which suffer with rabies or other dangerous animal diseases.

H. R. 4104. Free Distribution of Anti-rabic Virus. Introduced by Mr. Baker, April 18, 1921. Referred to the Committee on Appropriations. The bill gives the sum of \$25,000 to the Bureau of Public Health Service for the distribution free of cost of

antirabic virus to be used in the treatment of persons exposed to rabies.

S. 802. Incorporation of American Society for the Control of Cancer. Introduced by Mr. Wadsworth, April 13, 1921. Referred to the Committee on the Judiciary. This bill provides for the incorporation of the American Society for the Control of Cancer, which is pledged not to engage in any business for gain.

H. R. 5033. Prescriptions of liquor for medicinal purposes. Introduced by Mr. Volstead, April 25, 1921. Referred to the Committee on the Judiciary. This is a measure supplementing the National Prohibition Act. It eliminates the sale of beer on a physician's prescription. By a recent decision of former Attorney General Palmer, the distribution of a bottle of beer per day to patients by doctors holding permits from the Prohibition Commissioner was legalized. This proposed act annuls the Attorney General's ruling. Prescribing wine is still permitted. Another feature of the bill is a provision giving the Prohibition Commissioner the right to cancel, suspend or revoke licenses of physicians who fail to observe the law in prescribing spirituous or vinous liquors. In this case notice is served upon the offender and he is given thirty days to show reason why the license should not be cancelled. Among other measures of a similar nature to be passed on by the Committee is the bill which transfers actual enforcement of prohibition from the Treasury Department to the Department of Justice.

H. R. 5346. Bureau of Citizenship (health instructions for aliens). Introduced by Mr. Johnson of Washington, April 27, 1921. Referred to Committee on Immigration and Naturalization. The name of the Bureau of Naturalization of the Department of Labor is changed by this measure to the Bureau of Citizenship with the creation of a head official entitled "Director of Citizenship." Complete control, registration and education of the alien population of the United States, including all questions connected with their naturalization, are invested in this Bureau of Citizenship. The Director is authorized to promote in the states, among other things, instruction in physical education, health and sanitation, for foreign-born and native illiterates.

S. J. 46. Investigates health of former soldiers. Introduced by Senator Robinson

of Arkansas, May 2, 1921. Referred to the Committee on Military Affairs. This resolution provides for the establishment of a commission composed of three members of the Senate and three members of the House, whose duty it shall be to investigate conditions respecting the health, hospitalization, compensation and employment of former service men. The commission at the end of three months shall report to Congress the results of its investigations with recommendation for remedial legislation.

H. R. 5764. Extends authority for expending money on war risk hospitals. Introduced by Mr. Landley of Kentucky, May 4, 1921. Referred to the Committee on Public Buildings and Grounds. The purpose of this proposed amendment to the act passed at the last session of Congress authorizing the expenditure of \$18,600,000, is to give the Secretary of the Treasury additional discretion in the use of this money in equipping or remodeling hospitals belonging to the Army and Navy and also national homes for disabled volunteer soldiers now being used for the care of former disabled war veterans.

H. R. 5617. To establish a bureau for study of criminal, pauper and defective classes. Introduced by Mr. Walsh, May 2, 1921. Referred to Committee on the Judiciary. This bill proposed in the Department of the Interior a bureau for the study of abnormal classes, especially such as may be found in institutions for criminal, pauper and defective groups.

Eighteen other bills were introduced into Congress by May 9, 1921, which are indirectly connected with health administration. These relate to hospitals and hospital construction, compensation and bonuses, reimbursements, vocational rehabilitation, prevention of fires in industrial plants, hoarding of foods, and one, H. R. 4136, requires the words "Goat meat," to be stamped on the carcasses of goats.

Interdepartmental Social Hygiene Board. —The last Congress, in its session closing March 4, 1921, made no appropriation for continuing this Board. Since the adjournment of Congress the Surgeons General of the Army, Navy and Public Health Service have met and agreed that the Board should ask the present Congress for an appropriation of \$925,000. This money, if



appropriated, is to be devoted to five general purposes: 1. \$500,000 for allotment to state boards of health in accordance with the provisions of the Chamberlain-Kahn act. 2. \$250,000 for assisting the states in protecting the military and naval forces of the United States against venereal diseases. 3. \$50,000 for medical research with reference to treatment and control of venereal diseases. 4. \$25,000 for administrative expenses. 5. \$100,000 for developing better anti-venereal disease education. Items 2, 4 and 5 are to be under the control of the Board with reference to administration and disbursements, and 1 and 3 by the Public Health Service.

The organization of the Board under the new administration has resulted in Major General Merritt W. Ireland being elected chairman, and in the three Surgeons General actively serving on the Board as representatives of the three Secretaries.



National. National Health Council Report of Congressional procedure brought down to May 10, 1921.

H. R. 6263. Expenditures for Hospitalization. Introduced by Mr. Langley of Kentucky May 16, 1921. Favorably reported by the Committee on Public Buildings and Grounds.

This measure amends the act passed by the last session of Congress appropriating \$18,600,000 for the construction of new hospitals for the government and the building of additional extensions to present institutions owned by the government. In the original act it was specified that of this sum \$6,100,000 was to be used in remodeling and extending existing institutions. This bill, in the form of an amendment, eliminates such restriction and gives the Secretary of Treasury authority to expend the entire amount either for new hospitals or for the construction of additions to old hospitals. It was deemed of such importance that the Committee on Public Buildings and Grounds met the day following the introduction of the measure by Mr. Langley and, acting promptly, reported it favorably to the House, asking for immediate passage.

S. 1839. New measure for creation of Department of Public Welfare. Introduced by Senator McCormick of Illinois May 18, 1921. Referred to the Committee on Education and Labor.

This is the first of a series of bills to be

introduced into Congress for the reorganization of the Federal government by Senator McCormick of Illinois, who has made an exhaustive study of this subject. The measure is quite similar to the Fess-Kenyon bill for a Public Welfare Department except that it provides for the transfer of additional bureaus and commissions from other departments. In the McCormick measure there is a cabinet member at \$12,000 a year and three assistant secretaries at \$7,500 a year, who have charge of the various functions and operations of the public health and welfare activities. The bureaus, offices and branches of service to be included in the Department of Welfare as prescribed in this bill with the Departments from which transferred are as follows:

(a) From the Department of the Interior—Office of Indian Affairs, United States Indian Service, Bureau of Pensions, Bureau of Education, St. Elizabeth's Hospital, Howard University, and Freedmen's Hospital. The Board of Indian Commissioners is abolished.

(b) From the Department of the Treasury—Bureau of War Risk Insurance, Office of the Surgeon General, Public Health Service, the collection of vital statistics would be under the direction of the Public Health Service. The United States Employees Compensation, the Federal Board of Vocational Education, the United States Interdepartmental Social Hygiene Board, the National Home for Disabled Volunteer Soldiers, the Columbia Institution for the Deaf are all abolished as separate institutions and their functions are transferred to the new Department of Public Welfare. The Secretary is authorized to reorganize branches of services within the proposed Department.

H. R. 6300. Deficiency Bill. Reported without amendment on May 18, 1921.

The Deficiency Bill for the fiscal year ending June 30, 1921, contains the following items of interest to public health workers:

Federal Board for Vocational Education .....	\$15,000,000
Medical and Hospital Services, Bureau of War Risk Insurance.....	8,710,272
Prevention of Epidemics, Public Health Service .....	309,000
Expenses for eradication of tuberculosis in animals, Bureau of Animal Industry .....	405,000

H. R. 6215. Amendment to Pure Food and Drug Act. Introduced by Mr. Voight of Wis-

consin, May 13, 1921. Referred to the Committee on Agriculture.

This is an amendment to the Pure Food and Drug Act, which is designed to put an end to the manufacture, sale, or transportation of adulterated milk. It applies particularly to any kind of milk or cream, whether evaporated or condensed, which has been blended with fats or oils other than milk fats.

S. 1607. Fess-Kenyon bill for a Department of Public Welfare. The joint hearings have officially closed. They were held on May 11, 12, 13, 18 and 20. Thirty-seven witnesses were heard.

Brigadier General C. E. Sawyer explained the bill and stated that the plan had the endorsement of the President. Surgeon General Cumming explained the scope of the office of the Surgeon General and requested that it be retained. He seemed to acquiesce in the bill excepting for the clause abolishing the office of Surgeon General. Dr. W. H. Welch of Johns Hopkins, favored the bill. He stated that while departments of education and health are desirable, they may be combined. Dr. Edward Martin, Health Commissioner of Pennsylvania, seemed to agree with Dr. Welch. An entire session was taken up by representatives of educational interests, who in general were not opposed to a Department of Public Welfare, but did not wish education submerged in it. Representatives of the N. E. A., Columbia University, American Council of Education, National Congress of Mothers and Parent Teachers, International Sunday School Association and other organizations were heard supporting this view. Other speakers advocated various changes and a number of individuals, chiropractors, representatives of citizens protective associations and American medical leagues opposed it.

Delaware.—The recent Legislature increased the appropriation for diphtheria antitoxin from \$500 to \$5,000, so that diphtheria antitoxin, the Schick test and toxin antitoxin are now free to all applicants. It also made an appropriation to pay the salary and expenses of a supervising nurse for instructing midwives.



District of Columbia.—Information furnished by the National Health Council. The legal management and appropriations of the District are vested in Congress.

S. 810. To regulate practice of Medicine in District of Columbia. Introduced by Mr.

Cummins April 13, 1921. Referred to the Committee on the District of Columbia.

The bill is an amendment to the act already in existence regulating the practice of medicine and surgery in the District. It provides that persons who apply for licenses must give satisfactory evidence that they have studied medicine or surgery in a medical college authorized by law to confer such a degree, or under a preceptor authorized to practice medicine and surgery for not less than three years prior to the issue of the diploma. The former act did not contain these provisions.

H. R. 4118. Prevention of Venereal Disease in District of Columbia. Introduced by Mr. Baker April 18, 1921. Referred to the Committee on the District. The bill compels all physicians, dentists, nurses, midwives and other persons who professionally attend to file a written report with the Health Board, of all cases of syphilis, gonorrhea, or chancre that come under their notice. It also provides a penalty for any patient suffering with venereal disease who fails to carry out the instructions of his physician to prevent the spread of the disease. Every person, under penalty, is also compelled under the law to report to the Health authorities within three days after becoming aware of the existence of the disease.

S. 749. Regulation of practice of osteopathy in District of Columbia. Introduced by Mr. Capper April 13, 1921. Referred to the Committee of the District. This proposed act creates a Board of Osteopathy Examiners of the District of Columbia composed of five members who shall have the power to issue licenses and regulate the practice of osteopathy in the District of Columbia. The same bill number H. R. 2918 has been introduced in the House by Mr. Smith.

S. 624. Regulations for Chiropractic in the District of Columbia. Introduced by Mr. Fletcher April 13, 1921. It provides for the selection of a board of Chiropractic Examiners and general regulations on the subject within the District.

S. 753. Experiments upon Living Dogs. Introduced by Mr. Myers April 15, 1921. Referred to the Committee on Judiciary. This is the anti-vivisectionist bill which has for years been before Congress. The proposed act makes it a misdemeanor for any person to experiment or operate upon any living dog in the District of Columbia or the Territories of

the United States. The penalty is a fine of from \$100 to \$500.

Another bill, H. R. 2920, provides for the establishment and maintenance of a school and home for feeble-minded persons.

Legislation tending to improve the milk supply of the District has been submitted to the Commissioners by the Health Officer with recommendation for its enactment by Congress. A venereal disease bill, designing to assist the Health Officer and the Commissioners in the control of venereal diseases has been prepared by the Health Officer and forwarded to the Commissioners with a recommendation that it be promptly forwarded to Congress for enactment.

In the Act making appropriations to provide for the expenses of the Government, fiscal year 1922, there is a provision "To aid persons of moderate means who are suffering from tuberculosis to obtain adequate sanitarium and hospital care, \$3,000." This is a new item and details of the method of dispensing this fund have not as yet been fully formulated.



Illinois.—Senate Bill No. 294 provides for the employment of full time medical health officers, paid by the State, for every county in Illinois. It has been endorsed by the Council of the State Medical Society and by local medical societies in the state.

A new ruling of the State Department of Public Health requires all employes to be successfully vaccinated against smallpox. The Director of the Department set the good example by being the first to comply with the rule.

On April 19th the Board of Supervisors of Champaign County unanimously voted to increase an appropriation of \$85,000 for the construction of a county tuberculosis sanatorium to \$109,000. This increase makes possible the erection of buildings that represent the latest and most scientific thought in sanatorium construction and commodious enough for future needs.

It will be located just north of Urbana.



Massachusetts.—On May 3, 1921, the Governor signed Senate bill 392, which provides for the appointment of school nurses in the public schools. This is an amendment to the General Laws, whereby nurses as well as physicians are to be appointed by the local school committee, which is required to assign

a physician and a nurse to each of the schools within its jurisdiction. It is further necessary to provide both physicians and nurses with proper facilities for their work. Nurses are not obligatory in towns of less than \$750,000 valuation.

House bill 1661, to provide for physical training in the elementary and secondary schools of the Commonwealth was signed by the Governor on the same day. How different it was on emergence from the bill originally presented may be judged by the fact that the Committee on Ways and Means recommended that all after the enacting clause be stricken out and substituted what was in effect merely the addition of "indoor and outdoor games and athletic exercises" to the regular courses in spelling, reading, writing, geography, arithmetic, drawing, history of the United States, duties of citizenship, good behavior, physiology and hygiene, etc., already prescribed.



Minnesota.—Legislative economy has resulted in a smaller appropriation for the work of the State Board of Health for the coming two years than for the past fiscal period. The treatment of Pasteur cases will be discontinued July 1, 1921 and such patients will be referred to local boards, while after-care in poliomyelitis will be undertaken by the State Hospital for Crippled and Deformed Children. This work has been under the care of the State Board since 1916. The program in venereal diseases must be modified to meet the loss of aid from the U. S. Government, and a new plan has been determined on which will decentralize the free clinics and place the former cost of this work on the University Medical School and local boards.



Missouri.—The State Legislature has appropriated \$120,600 for the State Board of Health for the biennial period of 1921-1922, with one of the items, \$20,000 for coöperative work in rural sanitation.



Ohio.—The General Assembly has passed the Jones bill, which amends previous legislation so that any county with a population of 50,000 or more may erect its own tuberculosis hospital. The bill is effective about July 1, and a number of counties are planning to establish hospitals. The previous stipulation was that two or more counties could join in

such an enterprise, but the more populous ones can not act without this limitation.

A bill intended to repeal the Kumler bill of two years ago, permitting nurses to administer anesthetics, has passed the Senate and it is expected that the House will concur. The repeal has been favored by the Ohio State Medical Association and other societies.

The Talley bill giving the State Health Department authority to require pure water supplies in municipalities, once tabled, has been revived and coupled with a bill by Senator Chatfield, and referred to the Senate Committee on Public Health. The Talley-Chatfield bill is upheld as a preventive of typhoid fever outbreaks such as that at Salem, O., last year. It will authorize the State Department of Health to compel the corrections of insanitary conditions in public water supplies.

The Wenner occupational disease bill has been signed by the Governor. The purpose of this is to compensate workmen disabled through such diseases. It has developed, however, that the appropriation is not adequate. Bills authorizing the Board of State Charities to arrange for treatment of crippled children from the Juvenile Court and to authorize school officials to make special appropriations for the education of blind children and deaf children, have been passed.

Various bills now pending provide for improvements in institutions, largely for the benefit of tuberculous patients. The constitutionality of the Hughes-Griswold Health Code has been attacked in the courts. The suit is to compel a county auditor to pay to a village a sum of money collected in the county for the village under authority of the law.

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**West Virginia.**—The Legislature has passed the Model Vital Statistics bill.

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**Be getting ready now for the  
great Fiftieth Meeting of the  
A. P. H. A.—New York City,  
November 14-18, 1921.**

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## STATE HEALTH NOTES— GENERAL

**National.**—The success of the Institute on Venereal Disease Control and Social Hygiene recently conducted by the Public Health Service suggests that public health officers, practicing physicians, nurses, social workers and clinicians are eager for more training and that they will come long distances to get that training (650 attended the Venereal disease Institute) when the best kind of instruction is offered to them.

The Service, therefore, proposes to conduct a general public health institute to take place during the fall of 1921; and to offer 25 to 30 courses including the following: Diagnosis and treatment of tuberculosis, Nutrition in health and disease, Sanitary engineering, Clinic nursing and social work, Clinic management, Courses in syphilis and gonorrhea, Mental hygiene. Industrial hygiene, Child hygiene, Vital statistics, Laboratory diagnosis, Health centers, and Various courses in psychology and sociology.

The Institute faculty will be composed of 75 to 100 leading authorities, including: William H. Welch, William H. Park, John A. Fordyce, Valeria H. Parker, John H. Stokes, Michael M. Davis, Jr., William A. White, Anna Garlin Spencer, Irving Fisher, C. V. Chapin and M. J. Rosenau.

Twelve hundred boys and girls employed in the various industries of the city of Newark, N. J., and attending the continuation schools several hours a week will be examined by a corps of doctors and nurses under the direction of Dr. H. H. Mitchell, health specialist of the Child Labor National Committee. Their physical condition will be compared with what it was when they received their working papers. A correlation will be made between the occupations in which the children engage and their health records while at work.

The object of the study, according to Dr. Mitchell, is to obtain reliable scientific data on which to base conclusions regarding the need of some form of health protection and service for boys and girls who have left the regular schools and gone to work, as well as to throw additional light on the question of whether the minimum age for entering industrial employment should be raised from 14, which is the age established by law in most of the states, to 16, which was recommended by the Children's Bureau Conference on Child Welfare Standards in 1919.

Of the ten largest cities in the United States, New York holds third best place in infant mortality rates for the past year. Statistics collected by the Babies' Welfare Federation show that out of every thousand babies born here during 1920, 85 died. New York's 1920 roll call of new babies totalled 132,856. During the year 11,340 under a year old died. This is an increase of almost 5% over the rate of the previous year, an increase which the Babies Welfare Federation holds the winter epidemics of pneumonia and influenza accountable for. Of New York's five boroughs Bronx has the lowest death rate, 77.6 per thousand, and Richmond the highest, 94.2 per thousand. The statistics for the other boroughs are: Manhattan, 91.7; Brooklyn, 80.5; Queens, 82.1. The poor showing of Richmond is thought to be due to the fact that it is largely rural and lacks traveling facilities for training mothers in the care of children.

Los Angeles holds the lowest mortality rate in the country having only 70.8 deaths per thousand. The second best showing was made by St. Louis, with 76.5 to its credit.

The records of the seven large cities having a higher death rate than New York are: Chicago, 85.48; Cleveland, 86; Philadelphia, 88.57; Boston, 100.8; Detroit, 104.2; Baltimore, 104.2; Pittsburgh, 110.8.

A conference was called at Washington, D. C., on April 14 by the National Information Bureau to consider the coördination of social work. More than 100 organizations were represented, which were classified into nine groups. One of these nine integral groups was that of health organizations.

The health group recommended to the National Health Council, already organized, that in so far as possible, it act as a clearing house of information to all agencies dealing with health. It was recommended further to the National Health Council, that it promote within the states, coördination conferences of national and state agencies in coöperation with state health authorities.

The general committee of the coördination conference was authorized to undertake, through the agency of the National Information Bureau, a study of the work of federal social agencies in local communities to determine the facts as to the interrelations of the work of national agencies in those communities.

In prescribing for a sick stream an intensive

study of stream pollution with special regard to the establishment of a general plan by which any polluted stream in the United States might be purified at a minimum expense has recently been begun by the United States Public Health Service.

As is well known a polluted stream tends to purify itself, but its power in this direction depends on the amount and character of the original pollution, on the volume and speed of the current, and on the extent to which new pollution is added along its course.

The Service has selected for study the Chicago Main Drainage Canal and the Illinois River (which empties into the Mississippi), chiefly because all the primary pollution of this stream originates in Chicago and is accurately ascertainable, both as to amount and character. Analyses taken along the course of the canal and river will determine the degree and nature of the changes that take place in it. Where new pollution is added, its amount and character must be ascertained; and its effect on the old pollution learned. This last is important, for it is quite possible that sundry industrial waste might neutralize each other or might destroy certain types of organic pollution.

Similar work was done on the Ohio River from 1914 to 1917; and the present study is to check the results obtained there.

The final object is to establish fundamental quantitative relationships between bacteriological and chemical pollution of a stream on the one hand and basic principles, such as population, industrial wastes, stream flow, and prevailing temperature, on the other.

From this diagnosis remedial measures may be formulated.

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**Arkansas.**—In accordance with the law county health officers to the number of 79 have been appointed for terms of two years, their work having begun on May 17, 1921.

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**Delaware.**—The Governor of Delaware has re-appointed Dr. G. W. K. Forrest, of Wilmington, Dr. L. S. Conwell, of Camden, Dr. W. F. Haines, of Seaford, as members of the State Board of Health for four years. At the meeting of the Board on April 7th, Dr. William P. Orr, of Lewes, was re-elected President and Dr. L. S. Conwell, Secretary.

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**District of Columbia.**—Dr. John L. Norris Assistant Health Officer of the Department of

Health, has resigned to accept a more remunerative position as Surgeon in the U. S. Public Health Service. This makes the second vacancy in the Department which it may be hard to fill. For more than a year the position of Chief of the Bureau of Preventable Diseases has been without incumbent and there seems to be a difficulty in securing a competent physician for the place, the salary of which is \$2,750 a year. The situation is quoted by the local press as an example of the inadequate scale of wages paid in many city departments.



Georgia.—Dr. B. V. Elmore of Rome and Dr. J. Allen Johnson of Bainbridge, Ga., have been appointed Health Commissioners. The Division of County Health Work of the State Board of Health is urging the county officers to become active in programs of health education, the result of which is that many have provided themselves with motion picture projectors and many films are being shown in rural districts.



Illinois.—In spite of the somewhat inclement weather conditions, Health Promotion Week (April 17-23) was a greater success this year than ever before. The program outlined by the State Department of Public Health for the occasion was generally observed throughout the State. Chicago led the way with an official proclamation by her Mayor and a vigorous campaign headed by Health Commissioner, Dr. John Dill Robertson. East St. Louis, Peoria, Decatur and other leading cities followed practically the same course. Especially noteworthy was the widespread and active interest displayed by the smaller municipalities and rural communities.

The leading features of the week's program were general cleanups, better baby conferences and birth registration. The latter is looked upon as of particular significance since it adds public approval to the plans of the State Department of Public Health to institute a relentless drive against non-registration of births until Illinois has been admitted to the United States Registration Area for Births.

Preliminary to Health Promotion Week, the State Department of Public Health outlined a program for the activities of each day of the week, printed and distributed 25,000 copies of a special bulletin on the subject and sent out 10,000 letters in reference thereto.

The response to this publicity campaign taxed the Department to the limit in its effort to meet requests from local communities for advice, special literature, exhibit material and assistance in the way of speakers. Schedules were so arranged that the motion picture films, stereopticon slides and posters maintained in the loan service made showings each day. Twenty speeches and special demonstrations were made by the limited personnel of the Department. More than 80,000 pieces of literature and more than 400 letters were sent out in reply to special requests.

The successful observance of Health Promotion Week is due in no small measure to the coöperation and assistance that was freely given by the daily and weekly newspapers. Editors all over the State gave liberally of their space and endorsed the measure with strong and favorable comments of their own.

Team work and smooth coöperation are the results of an innovation that brings together on each Thursday morning the Chiefs of the ten major divisions of the State Department of Public Health for a conference with the Director. These meetings give to the division heads a clear insight into the problems and activities of the other divisions and substitute active knowledge of purpose and policy for vague and hazy notions.

The conference on the last Thursday of each month is given over to a review of current literature on public health that proves at once instructive and interesting.

Considerable alarm and publicity was recently occasioned by the escape of a leper from quarantine in East Moline. Vigorous and earnest efforts to locate the leper were immediately instituted. While the search thus far has proved futile and although the case was positively demonstrated as one of leprosy, Dr. I. D. Rawlings, Director of the State Department of Public Health, takes the position that a single case of leprosy is much less a menace to the public health and is a source of decidedly less danger than the constant exposure to such common diseases as smallpox, diphtheria, scarlet fever, and pneumonia. Smallpox and diphtheria showed a marked increase during the past winter and both diseases are positively preventable. The other common communicable diseases respond readily to control measures and should elicit much greater public concern than a case of

leprosy. Leprosy is only mildly contagious in the United States.

Smallpox draws no age limit. This has been clearly demonstrated by several cases among unvaccinated persons of advanced years that have recently been reported. Two women of Loogootee, Ill., one 92 years old and the other 60, who had not been vaccinated since infancy were victims. A man of 80 at Geff and one of 72 at Xinia who had never been vaccinated were also attacked by this disease. Reports show that smallpox has been generally more prevalent in Illinois during the past winter than heretofore and a corresponding increase of activities among anti-vaccinationists is indicated.

In response to a request from the Southern Illinois Medical Association, the State Natural History Survey has undertaken a number of surveys in representative communities to determine the location and prevalence of malaria-carrying mosquitoes in the southern sections of the state. Up to the present time such surveys have been completed at Murphysboro and Carbondale in Jackson County and at Herring in Williamson County. According to reports an attempt has been made to determine the number of mosquitoes relative to the number of malarial cases. The next survey will be carried out during the coming summer at Thebes in Alexander County. Reports ready for distribution may be had from the State Natural History Survey, Urbana, Illinois.

A death on March 18th from trichinosis was recently reported to the State Department of Public Health. The victim was a white woman, age 28, who lived at Macomb, Illinois. The Department calls attention to the fact that trichinosis is a communicable disease of human beings and of hogs, rats, mice, dogs and other animals. It is caused by an organism which is barely visible to the naked eye and is transmitted to humans through the eating of infected hog flesh. Fever and muscular pain are prominent symptoms of the disease that may often be mistaken for rheumatism or typhoid fever. To prevent trichinosis in man, no hog flesh should be eaten unless thoroughly cooked.

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Kentucky.—In the State of Kentucky the women's clubs have taken an active interest in public health and have entered into relationships of coöperation with the State Board of Health. The Bulletin of the State Board for

February, 1921, is a Women's Club number, and presents a set of six club study programs on public health, prepared by the Kentucky Federation of Women's Clubs. These programs have been prepared so that any group of club women may be aided in the presentation of one to half a dozen health meetings. Each study is planned on a basis of three or four fifteen-minute papers, with five to fifteen minutes' discussion of each topic. References are given in the outline, so that the writers of the papers may have access to the most recent literature.

The first programme is one that relates to the baby. It discusses pre-natal care and how it is to be obtained. A second paper in this group outlines minimum standards for the care of women in the most critical and important time of life, and suggests how the standards are to be realized. The third and fourth papers in this symposium consider maternity and infant care and the need for public aid for mothers at time of childbirth. The literature available has much of it been adapted to the conditions that exist in this Commonwealth.

Taking up the period of infancy and till entrance to school, a second programme emphasizes the care of the well baby, the planning of the child's day, its sleep, its day-time rest, its diet and its exercise and other matters. Legal safeguards are considered, and public protection of infants as developed in health centres and similar establishments, while two other papers deal with pure milk and the protection of children from communicable disease.

In its consideration of the school child, the Kentucky manual deals first with that all-important though as yet little-developed matter, the sanitation of the schoolhouse. The need of physical examination is another topic, an understanding of which will go far towards offsetting the propaganda of medical liberty leagues. This is a most important section of the whole discussion, including as it does the consideration of the school equipment for school medical work, the relations of the school nurses and those of the school physician. Incidental to this discussion are school clinics, open-air schools and school luncheons.

In similar manner the programmes of the Kentucky Federation consider the dependent child and the defective, together with a brief discussion of delinquency. Of the value of

such considerations of all-important health topics at a hundred centres in Kentucky in well-advised fashion, there can be no doubt. Supplementary items make the State Board Bulletin of even more interest, including "A Health Message" from Dr. A. T. McCormack, State Health Officer, and a playlet, "The Costly Party," prepared by the pupils of the Louisville Normal School and devoted by them through the Federation to health education. The motive of the playlet is that a little girl has the "flu," a party has been scheduled, and, despite the warning of the doctor, it is given and the disease spreads among the invited children. Its book gives a running fire of health lessons.



**Maine.**—The Maine State Board of Health is making a campaign in favor of breast-fed babies. This is the baby's right and efforts are made to have every mother assure to her child the start in life that breast feeding will give. Nothing is so good for the baby as mother's milk and nearly every mother is capable of nursing her child if she wishes so to do.

In its efforts to better the statistical work of the state the Maine authorities are noting to the people that they are the foundation stones to all public health work. The individual should recognize the value of good statistics to himself personally, and interest himself in the improvement of them. Birth records are indispensable and the laws with reference to the recording of births, deaths, marriages and divorces are important ones and should be strictly enforced.

What the public health nurse means to the community is set forth in a little statement by Dr. L. D. Bristol, State Health Commissioner, who notes that the nurse is the strong right arm of the health forces of the state. She is a graduate nurse, registered by the state, and with special training to fit her to engage in the preventive, remedial, and educational health work of any community. Wherever babies are born, and mothers can not have the services of a private nurse; where there is lack of care among the children through ignorance or neglect; where home conditions are bad; where there are schools in which children are suffering from uncorrected physical defects; where there are men, women, and children suffering from tuberculosis without instruction as to proper care of themselves and their families;

where there is sickness or distress among poor; in these and many other places the public health nurse finds a field for her work.



**Massachusetts.**—Details have been completed for a demonstration in public health organization to be carried out on Cape Cod, and on May 16, 1921, the project was launched under the direction of Dr. Russell B. Sprague, a former district health officer together with a nurse furnished by the local chapter of the Red Cross. Ten towns have entered into coöperation with the state authorities and the U. S. Public Health Service, the whole organization bearing the name, Cape Cod Health Bureau. The towns interested in the demonstration are: Barnstable, Bourne, Brewster, Chatham, Eastham, Orleans, Sandwich, Truro, Wellfleet and Yarmouth.

The corps of workers will consist of a full time health officer, a sanitary inspector, a public health nurse and an office assistant.

Reports will be made and plans will be subject to approval by the local health boards and the State Department of Public Health, as well as the Public Health Service.

The functions of this staff will be similar to those of a full-time health officer and his assistants in a municipality and they will range from the physical examination of school children to the abatement of nuisances, including the control of communicable diseases, inspection of milk and water supplies, the promotion of child welfare and clinics in coöperation with established agencies, the inception of maternity and infant hygiene in towns where it is not carried on.

The health forces of the city of Boston have had this season a series of interesting meetings in different sections of the city. Altogether there were public gatherings in nine centers in different sections of the city and to very varied groups of citizens. In the North End the audience was largely Italian, at the West End, it was 95% Jewish, in other sections the companies were mixed, but everywhere the people manifested the same kind of interest. This interest was heightened in that special groups had speakers in their own tongue, E. A. Campana, a sanitary inspector of the Boston Health Department, addressing the Italians and Dr. Wilinsky using the Yiddish vernacular.

The meetings had for their slogan, "Your good health and mine," in each program there



was singing and in each one one or more motion pictures relative to health. One of the most interesting features was a period during which the members of the company assembled were encouraged to ask questions. Some of these were of value, for example, whether chewing gum after meals is helpful in cleaning the teeth. The speaker said that despite some contrary opinions it was pretty well established that such a process was of use and aided in the prevention of dental troubles. Another question was as to how the pig, wallowing in filth, could be other than a means of transmitting germs to man, to which the answer dwelt on the immunity of certain animals to bacteria and showed that pigs are not dangerous in that way. Other features of these question periods developed complaints against health services and once or twice sought to raise the question of tenant and landlord.

The meetings proved highly successful and it is proposed to continue them. Through the coöperation of Health Commissioner W. C. Woodward and Mr. James T. Mulroy, Director of the Department for the Extended Use of Public Schools, it is proposed to establish a permanent health center in each school center building at which the district health officers may have headquarters and meet the people of their districts from time to time.

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**Michigan.**—This state has already started its "laboratory on wheels," on its rounds for the purpose of inspecting sanitary conditions at Michigan health resorts. During the season of 1920 this laboratory visited 131 summer resorts and hotels, reporting that nearly half the water supplies were unsafe, fully half of them had no adequate method of disposing of garbage, while almost as large a percentage of the milk supplies would not pass the bacteriological tests for "reasonably clean" milk. "People in cities are learning the value of sanitation," states Dr. R. M. Olin, the State Health Commissioner, "and in choosing a place to spend their vacations will come to demand the same protections that are afforded in everyday life." Another expert in the Board, Maj. Edward D. Rich, notes that when the crowded conditions at resorts are considered and the fact that a large portion of the patrons are not at physical par, the need for the closest health supervision is evident.

Rural typhoid is rife in Michigan and on

May 30, according to local reports was present in 47 out of the 83 counties. There are a number of counties free from the disease which are entirely surrounded by others in which there are cases of the disease. Wayne County with a population of 180,000 has more cases than Detroit with 500,000 or more. On account of the prevalence of the disease the health authorities are urging prophylaxis, using the pertinent argument that the A. E. F. was practically free from typhoid.

Within the past few weeks the Supervisors of Jackson County, Mich., have appropriated \$5,000 to coöperate with the Division of Animal Industry, in eradicating bovine tuberculosis; two other counties, Wayne and Hillside have appropriated \$3,500 each, while five other counties have voted smaller sums for the same purpose. This is evidence of a fairly systematic effort to rid the state of the tuberculous cow.

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**Minnesota.**—The State Board of Health at a meeting of May 3, 1921, made the following changes in staff: Secretary and Executive Officer, Dr. A. J. Chesley, from Director, Division of Preventable Diseases; Director, Division of Preventable Diseases, Dr. Orianna McDaniel from Assistant Director; Dr. Charles H. Halliday, Senior Epidemiologist, Division of Preventable Diseases.

On account of the failure of the last Congress to continue Federal aid to the states in the control of venereal diseases, this work in Minnesota has been curtailed. The Legislature could not see its way to cover the deficiency, although the Senate Committee did recommend an increase from the \$30,000 of last year to \$40,000. The State Board of Health frankly outlining the situation calls upon the medical profession for the continuance of the coöperation that has been afforded in the past.

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**Nebraska.**—A new Division of Child Hygiene and Public Health Nursing has been created in the State Bureau of Health with Miss Margaret McGreevy, R. N., for Director.

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**New York.**—Smallpox has been declared to be epidemic in North Tonawanda.

The Healthmobile began its third season on April 25 under the direction of the Division of Public Health Education. By means of this specially equipped motor truck it is possible to carry the health campaign into sections of

the state remote from traction or steam lines. The plan adopted last year of combining forces with the Division of Child Hygiene is being carried out this year. Each afternoon a child health consultation clinic is held under the direction of a physician from the Child Hygiene Division, assisted by a state supervising nurse and the Sanitary Supervisor of the district. The health officer is always invited to be present. This is followed in the evening by a meeting open to the public, health films being shown. When possible a speaker is provided.

At the meeting of the State Medical Society at Brooklyn May 3 to 5, one session of the Section on Public Health, Hygiene and Sanitation was devoted especially to the problems of health officers and medical school inspectors. The program of a second session was prepared by the New York State Association of Public Health Laboratories while the two remaining sessions were held jointly with the sections on Medicine and Pediatrics respectively.

The fifth annual meeting of the New York State Association of Public Health Laboratories was held at Brooklyn, May 4. The scientific program included the following papers: A comparative study of diagnoses made in various laboratories in New York State by Miss Ruth Gilbert, Albany; Pneumococcus infection and immunity by Dr. O. T. Avery, New York; Serological studies in tuberculosis by Messrs. S. A. Petroff and George Ornstein, Trudeau; Coöperation between the central State Laboratory and the local municipal and county laboratories by Dr. A. B. Wadsworth, Albany.

At the business session the officers elected were: President, Dr. W. B. Stone, Schenectady; Vice-President, Dr. W. C. Noble, New York; Secretary-Treasurer, Miss M. B. Kirkbride, Albany; Members of the Council, Dr. W. S. Thomas, Clifton Springs, and Dr. Ellis Kellert, Albany.

The mid-year meeting of the association will be held in the autumn at the State Laboratory, Albany.

The State Board of Health is calling the attention of the newly married to the importance of registration of the fact. It should be a part of the regular duties of the person who performs the ceremony to transmit the certificate of marriage with the original license to the clerk who issued it, but this sometimes is not done. In New York state it is the

custom of the State Department of Health to send a circular to all newly married women and in default of the arrival of this, inquiry should be made of the local registrar whether the marriage was properly recorded.

This is the time of the year for the regular conferences of the district health officers in New York state. On May 10 the Utica group was called to order in Hotel Utica; on May 12 three counties, Monroe, Livingston and Ontario were represented at a meeting in the office of the State Sanitary Supervisor in Rochester; on May 24 local officials came together in Saratoga Springs from the counties of Fulton, Hamilton, Montgomery, Schenectady and Saratoga; and the following day was the date for the Jefferson-Lewis county conference at Watertown. On May 31, three counties, Westchester, Putnam and Dutchess, sent delegates to the meeting at Brewster and June 1 saw another gathering of the kind in Middletown representing Delaware, Sullivan, Ulster, Orange and Rockland counties. At each of these meetings some local dignitary presided, local speakers presented local phases of health problems and the State Board was represented by one or more speakers, Dr. M. Edgar Rose, Director of the Child Welfare Division of the Board being present at all of them. All public health nurses of the counties were invited to attend and take part in the discussion, while at Middletown the nurses had a conference of their own.



**New York City.**—The Greenwich House Health Center, with the idea of giving impetus to its baby welfare work, recently demonstrated a "Prize Mother's Contest." The idea is one originating with Mr. and Mrs. Routzahn of the Russell Sage Foundation, some account of an earlier one having been published in the *A. P. H. A. News Letter* for April, Page 3. The mothers attending the Baby Feeding Clinic of Greenwich House were given notice that on April 27 there would be a mother's contest instead of the familiar baby's contest. At the appointed time and place there was a health exhibit. The mothers were greeted at the entrance and given an opportunity to answer the following questions, the answers to which were written down on score cards. The questions were:

1. Age of baby, — years, — months —.
2. Number of hours sleep per 24 hours?
3. Baby sleep alone?

4. Windows in baby's sleeping-room? Open? Shut?

5. Give baby anything to make it sleep? What?

6. Breast fed? Artificially fed? What used?

7. Baby nursing? Weaned? At what age?

8. How often is baby fed?

9. Give baby any other food than milk? What?

10. Ever use a pacifier?

11. How often is baby bathed?

12. What clothing used?

The rating was fixed immediately and before leaving the mothers received their prizes. There were gold, blue, red, green or black seals, representing 100%, 90%, 80%, 70% and failures. When the mother was finished in the clinic she was directed to the prize table and allowed to select one piece or another of aluminum ware, which would be of use in making up food for the baby. The reason for the selection of these articles is because the mothers in the district are largely Italian, and with these people it is difficult to get them to wean the babies when the time comes. Every factor was used to make the contest attractive, the seals were mounted on tags and the tags had health mottoes on the back in typewritten characters.

One of the by-products lies in the cards, which will be used by the nurses in follow-up work in the families.



**North Carolina.**—Another forward step in the protection of the public health is announced by the State Board of Health, the newest move being aimed at the eradication of diphtheria. Through Dr. C. A. Shore, Director of the State Laboratory of Hygiene, notice is being sent the physicians of the state that toxin-antitoxin is now ready for distribution at the nominal charge of ten cents for the three doses needed to give immunity.

The authorities explain to the people in notices of various kinds that toxin-antitoxin is different from diphtheria antitoxin. The latter is used for treatment and, in 1,000 unit doses, for immediate protection. The immunity rendered by the toxin-antitoxin mixture is believed to last for years, certainly as long as the immunity produced by typhoid vaccine. There is good reason to believe that diphtheria can be practically stamped out by the wide-

spread use of diphtheria toxin-antitoxin mixture.

North Carolina claims to be the first state in the Union to make the means of immunity from diphtheria available to all citizens virtually without cost.



**Nova Scotia.**—The Massachusetts-Halifax Health Commission reports that a special dental service is being organized by the Commission for the summer months. It will be under the advice and general guidance of the Consultant in Dentistry, Dr. Frank Woodbury and Dr. Arabella MacKenzie, a pedodontist at the preschool age dental clinic in Admiralty House Health Centre. Appointment of Dr. J. S. Bagnall, as supervising dentist and Dr. J. H. Lawley, first assistant, has been made.

The School board of Halifax has arranged to have the school nurses make social investigations in the homes of children needing dental work and make engagements for their treatment in the Dental Infirmary. These nurses will give a month of summer holiday to this work. The newly appointed school nurse will begin work at once in order to help speed up this campaign of dental hygiene.

Children having need of operation for the removal of adenoids and tonsils will be given the right of way in the dental hygienic clinic. In the beginning only children under 10 years of age will be treated. Later in the Summer perhaps the age limit may be raised to 12 years.

The same opportunities will be afforded the school children of Dartmouth both in the dental hygiene and the nose and throat clinics. These special clinical services have proved of great interest to members of the Canadian Medical Association meeting here in June.



**Ohio.**—The school health pageant, "Health Wins," is meeting with much favor throughout the state. It has been adapted by its author, Mr. J. Clarence Sullivan, to out-of-door use and is booked as an attraction as well as an educational feature at many fairs, at the Mississippi Valley Conference and at meetings of local health leagues. Fully a score of dates of one to three days are already booked and it will be active as an outdoor attraction till the snow flies.

The Ohio Public Health Federation, which was revived early this year in view of certain political movements, includes no less than a

dozen state-wide organizations, which have taken the matter in hand of giving the state a fair deal in matters of importance in health administration. The associations federated are the following: Ohio Federation of Women's Clubs, Ohio State Association of Graduate Nurses, Ohio State Medical Journal, Ohio State Dental Association, Ohio Public Health Association, Ohio Hospital Association, Ohio State Pharmaceutical Association, Homeopathic Medical Society of Ohio, Ohio Veterinary Medical Association, Ohio Osteopathic Society, Ohio Eclectic Medical Association and Funeral Directors and Embalmers Association of Ohio.

The city of Cincinnati, through its Department of Health, is circularizing the people in the interests of protection from diphtheria. The principles of the Schick test are outlined and a blank form of request is attached so that parents may ask for a test for their children, the test to be made in the school building and under the direction of the Department, the General Hospital and the Medical Colleges of the University. As a result of the distribution of information the Health Commissioner, Dr. W. H. Peters, has received requests for the testing of 255 children in one of the schools and 300 requests from the parents of children in another school. In the group first-named there were 68 positive reactors. The directors of two orphan asylums have also requested tests of the children under their care.

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Ontario.—The Province of Ontario has equipped the motor truck of its Child Welfare Clinic with projecting apparatus and health films. The car is fitted up as a clinic with a physician and a nurse for personnel. The object of these demonstrations is to impress the public with the need of appointing a permanent nurse in every community to carry on the good work which the provincial nurses have started. Each nurse is provided with a motor car, to enable her to cover as much ground as possible and get in touch with all classes of people.

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Oregon.—The State Board of Health has resolved itself into a Bureau System, as follows: Bureau of Administration, Dr. C. J. Smith; Bureau of Legislation and Rules and Regulations, Dr. Andrew C. Smith; Bureau of

Nursing, Dr. F. M. Brooks; Bureau of Epidemiology, Dr. George Houck; Bureau of Vital Statistics, Dr. J. H. Rosenberg.

The quarterly meeting of the Board was held at Grants Pass, May 10, 1921. Rules and regulations were adopted for the parole of cured venereal cases for one year after leaving institution.

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Texas.—Texas has now a number of different active forces at work for the betterment of the public health. The State Department of Health has under way the development of the Bureau of Child Hygiene, and Public Health Nursing, having called to the position of Director, Mrs. Lydia K. King, a resident of the state for 22 years, a teacher of health in the summer normals of Oklahoma and Texas, a nurse with the A. E. F. and since then till now in coöperation with the Texas State Board.

Together with other states having a large negro population, Texas emphasized Negro Health Week, from April 3 till April 9, during which time about a quarter of a million of these people participated in the celebration. A special feature was emphasized each day, Wednesday being Children's Day; Thursday, Tuberculosis Day; while on Sunday there were health sermons in all the churches.

The Texas Public Health Association is engaged in an anti-fly and anti-mosquito campaign, and against the latter is noting the facts, that a mosquito can fly only a little more than a mile, that breeding places within this distance of the home are unsafe, and that in all events the home should be screened. Fresh air is another of the health subjects that this Association is emphasizing. "Overheating like overeating, is the cause of much ill health to man," is one of the sentiments that this campaign has evolved.

At the present time the Texas Public Health Association is carrying on a campaign for a \$300,000 hospital for negroes. There is no bed in Texas for the tuberculous negro outside the penitentiary, and the economic loss through this class is set at \$14,000,000 a year.

The city of Dallas has started on a campaign of education among its citizens, and has set forth important health truths and conditions in a special bulletin or progress report.

# INDUSTRIAL HYGIENE AND OCCUPATIONAL DISEASE

Abstracted by Drs. E. R. HAYHURST and E. B. STARR.

**Industrial Posture and Seating.** Special Bulletin No. 104 of the Dept. of Labor comprises 56 pages amply illustrated on this subject. The study was undertaken by the Bureau of Women in Industry with the idea of gathering together experience and designs from those who had given the matter serious consideration. The problem was in reality a question of eliminating, in so far as possible, the fatigue which comes from bad posture, or from continuously working in one position. Lack of imagination is responsible for much bad seating. Custom has decreed the way in which many operations are performed, rather than that the work is fitted to the worker. "A seat that never wears out" is the slogan that sells a certain make of round-top factory stool. The "ad" might better read: "The seat that wears the worker out."

Part I discusses posture in industry with comment upon the relation to fatigue, variation in posture, and what constitutes good and bad posture. Part II discussed seating, including chairs, the material of chair seats, shape and size of seats, adjustment, backs, foot-rests, benches and adaptability to handle supplies with many illustrated examples of standardized seating. A bibliography on the subject is added. The conclusions are: (1) That posture must be varied—continuous sitting or standing are both harmful and the will of the person is the ideal guide; (2) Work conditions should be such that correct posture is possible—there is no one chair that is best for the industrial processes. To provide a good seat is not enough; the important thing is to bring all parts of the work place into the best possible relationship.—Bureau of Women in Industry, *New York State Industrial Commission*, April, 1921.



**Ventilation, Heating and Humidity in Factories.**—For a concise statement of Labor Law bearing on the subjects indicated, in the New York Labor Law, Chapter 50, of March 9, 1921, paragraphs 299-300 are exemplary. Size of rooms and air space per person are also succinctly stated thus: "No

greater number of persons shall be employed in any room of a factory between six o'clock in the morning and six o'clock in the evening than will allow each person so employed two hundred and fifty cubic feet of air space nor, unless by written permit of the commissioner, than will allow four hundred cubic feet of air space for each person employed between six o'clock in the evening and six o'clock in the morning. Such rooms shall be lighted by electricity whenever persons are employed therein between six o'clock in the evening and six o'clock in the morning.—*New York Industrial Commission*, (became a Law, March 9, 1921).



**A Physiological Basis for the Shorter Working Day for Women.**—This article reviews briefly the arguments and evidences in support of the 8-hour day and discusses the condition known as fatigue. "Fatigue, like pain, is one of the great safety valves of the human machine. It is protective. It is a physic defense. Like pain, it warns of and protects against that which is worse than itself. It is a sign that one is going too fast." Numerous examples are given of increased production as the result of shortening the work day. Among those which have not been cited broadcast heretofore are examples taken from the report of the Illinois Industrial Survey Commission, 1918. Here the results in a soap factory which changed from the 10-hour to 8½-hour day, and its standard week from 55 to 48 hours, resulted in an increase of 11.8 per cent per hour and an increase from 42.8 cases to 45.5 per day. A similar finding is given in a corset factory and in buttonhole making, etc. The legal aspects of the problem including the opinion of the U. S. Supreme Court in 1908 are considered.

The sciences of physiology and psychology, the law, the decisions of the courts, the police power of the States, the example of the Congress, the Peace Conference, the joint interests of both employer and employee, the rights of society expressed in

the voice of an enlightened social conscience, all unite in favoring the establishment of the 8-hour day as the maximum which should be required of women in industry. For upon the women depends the vigor of the race, and the vigor of the race must not be exploited for present-day purposes instead of for racial conservation.—George W. Webster, Bulletin No. 14, *Women's Bureau, U. S. Dept. of Labor*, February, 1921.

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#### Silicosis and Tuberculosis Among Miners.

—For the year ending July 31, 1919, the chairman of the Miners' Phthisis Medical Bureau, reports over 32,000 statutory clinical examinations and investigations made. The attack rate of tuberculosis not complicated by silicosis was 255 per 100,000 as compared with 259 for the preceding year. While the prevalence was at the rate of 1,141 per 100,000 as compared with 1,267 and 909 for the two preceding years respectively. Tuberculosis with silicosis was 869 per 100,000, almost the same as the previous year. The unanimous opinion is that a technically satisfactory radiogram should be available for diagnosis. Tuberculosis affecting the silicotic miner is relatively non-communicable to healthy persons. However, the *Bacillus tuberculosis* from such lungs is just as vulnerable to guinea pigs as is the bacillus from an ordinary case of pulmonary tuberculosis.—*British Med. Jour.*, No. 3131, January 1, 1921, p. 26.

✦

**Factors Which Hinder the Extension of Industrial Hygiene.**—Some managers feel that the whole subject of industrial hygiene is in an experimental stage and they prefer to conserve their time and money until the advantages are more clearly seen and the most successful line of development found. A fairly common conviction is that it is

useless to improve conditions in the plant while conditions in the home remain unimproved:—in a way this hinges on whether employees are getting a "living wage" and the degree of responsibility of the employer for setting the standard of requirements for healthy living. The progressive manager has also to justify to his directors outlay which in the nature of the case will not certainly yield dividends or quickly tangible results. Opposition from the employees themselves is often found, in that they reason whether money so spent might not have been better spent on increased wages. Employees are also apt to misconstrue the motive. Post-war conditions are offered also as an argument that the time is unpropitious either for launching new plans or for gaining any representative view of conditions. The expense of getting real results may be considerable where employees live at long distances, necessitating an expensive visiting nursing service. Again, many employers and managers who genuinely desire "to do the best for the employee" have proceeded without getting expert advice and as a result have fared badly in that they have installed more or less expensive improvements which have given little results. Part-time medical services concerned mostly with accident work is not a substitute for industrial hygiene. "Broadly it may be said that while there is an interest in the subject of industrial hygiene there is a lack of continuous and organized effort to promote it, and that its full importance as a factor in commercial prosperity is not realized." "On the whole we are forced to the conclusion that there is general lack of recognition of the occupational factor in disease."—*Report No. 7, Survey of General Conditions of Industrial Hygiene in Toronto*, Sub-Committee of the Privy Council for Scientific and Industrial Research, Ottawa, 1921, 21 pages.



**Hotel Astor will be the Hotel Headquarters of the Fiftieth Annual Meeting of the A. P. H. A. The date of the Meeting is November 14-18, 1921, and the place, New York City.**

# PUBLIC HEALTH LABORATORY NOTES

Abstracted by ARTHUR LEDERER, M. D.

**Diagnosis of Typhoid and Paratyphoid Infections.**—The high titer agglutinating serum can be employed to demonstrate the presence of typhoid and paratyphoid bacilli in feces both for diagnostic purposes in suspected typhoid infections and to determine their presence in the feces from convalescing cases without resorting to cultures. The typhoid bacilli can appear in the urine at the same time that an extensive circulatory bacteriemia exists, before a positive Widal reaction is obtainable. The finding of the bacilli in the urine may prove the only definite means of establishing a definite typhoid diagnosis. A typhoid bacillus cystitis can apparently exist without producing an agglutinin production in the blood. A typhoid or paratyphoid bacteriemia unsuspected in an operative case may prove disastrous to the patient. This paper and a previous one show that the detection and identification of motile bacilli in urine can prove of considerable diagnostic value.—Henry J. Goeckel, *Jour. Lab. Clin. Med.*, Vol. 6, No. 6, (1921).

✦

**Ice Water-Bath in Complement Fixation for the Wassermann Reaction.**—By this modified technic the tubes are placed in a rectangular galvanized iron pan with stopcock for drainage. Ice water is poured into the pan until it reaches a level higher than that of the fluid in the tubes. The temperature of this water is kept at 8°C. for 15 minutes by the addition of small pieces of ice. (The temperature of a tube placed in the ice water-bath is reduced to 9°C. in five minutes or less. After the expiration of 15 minutes, the ice is removed with the result that the temperature of the ice water-bath rises approximately one degree each half hour. At the end of the hour, the ice water is drawn off by opening the stopcock and the pan is refilled with water at 40°C. The tubes are allowed to remain in this for a period of five to ten minutes in order to remove the chill from the tubes before they are placed in the 37.5°C. water-bath. The

sensitized cells are then added and the tubes are placed in the 37.5°C. water-bath for one hour at which time the readings are made.—W. W. Duke, *Jour. Lab. Clin. Med.*, Vol. 6, No. 6, (1921).

✦

**Staining of Phagocytes.**—To 100 cc. of neutral distilled water there are added 20 cc. of glycerin and alcohol and then 2 cc. of phenol. In this fluid there is dissolved, by shaking for two or three minutes, crystal violet 0.06 gram and pyronin 1.2 gram. The stain is ready for use without filtration, and keeps for a long time if shielded from direct sunlight and the bottle is well stoppered. Smears are made on carefully cleaned glass slides and merely dried in the air. The stain is flooded on for five to ten seconds, and thoroughly washed off with distilled water, but direct drying of the preparation by blotting paper is avoided. The nuclei are stained violet and the cytoplasm takes a delicate lavender tint with the cell limits clearly and sharply defined, so that it is easy to distinguish between intracellular and extracellular bacteria, which are coloured deep purple. The chief advantage claimed for the method is that there is total absence of annoying precipitates which are too often associated with the staining of phagocytes.—*Johns Hopkins Hosp. Bull.* February, 1921; *Brit. Med. Jour.*, April 9, 1921.

✦

**Studies of Measles.**—Monkeys (*Macacus rhesus*) are susceptible to inoculation with the virus of measles. The symptomatology of the reaction induced in monkeys by inoculation with material containing the virus of measles is described. The symptoms and course of this reaction closely parallel those of human measles. The microscopic pathology of the lesions of the skin and buccal mucous membrane of monkeys experimentally infected with the virus of measles is also described. These lesions are essentially identical with the corresponding lesions of measles in man.—Francis G. Blake and James D. Trask, Jr., *Jour. Exp. Med.*, 33, 385 (1921).

### Metabolic Study of the Urine in Pellagra.

—The mineral metabolism seemed to be abnormal especially in the actively pellagrous stage as witnessed by the low  $P_2O_5$  excretion despite the fact that the diet taken at the time was a generous one with abundance of milk. Indications were present of a heightened putrefactive process in the intestines. The presence of casts or albumin or both casts and albumin in the urine gave evidence of more or less kidney change in about 50% of the cases. Marked pellagra can occur with no evidence of kidney change. There was low excretion of total nitrogen and the ordinary urinary ingredients. The urea ratio, in general, was low, and in certain cases with fair total nitrogen the urea ratio was lower than should be expected, a finding which suggests liver insufficiency. There was a heightened ratio for ammonia nitrogen and undetermined nitrogen. The metabolic level during the active stage of the disease was low as further shown by the low excretion of the uric acid and creatinin. The creatinin coefficient was much below normal. The utilization of protein was found to be subnormal, even after several weeks of a remedial diet. With at least a month on the curative diet, the urinary ingredients rose to approximately normal amounts, the urea ratio rose to normal and the ammonia ratio fell to normal. As suggested by Goldberger, Wheeler and Sydenstricker, the disease may be differentiated into at least two types: (1) a type with marked skin symptoms but with little physical degeneration; and (2) a type with slight skin symptoms but with profound systemic involvement. The abnormality in the urinary findings was greater for the systemic type than for the dermal type.—M. X. Sullivan, R. E. Stanton and P. R. Dawson, *Arch. Int. Med.*, 27, 387, (1921).



**Cultivation of the Gonococcus.**—The essential factor is reduced oxygen tension. Moisture is also necessary for good growth. A reduction in the oxygen tension of 10% is sufficient to produce optimal growth. The organism will grow luxuriantly, if the oxygen tension is suitable and moisture and uncoagulated protein are present, on media of ordinary reaction range. The technique is very simple. Ordinary broth agar (2%) is melted, and to it is added half as much

sterile ascitic fluid. The tubes are sealed with sterile rubber stoppers, slanted, and kept always in the incubator. They are copiously inoculated, care being taken to prevent cooling, and the inoculated tubes held horizontally, with the agar uppermost, are passed three or four times through the Bunsen flame and quickly corked. This is quite sufficient to lower the oxygen pressure to the requisite degree, when the tubes are returned to the lower incubator temperature. Colonies are visible in from 15 to 18 hours, and profuse growth is obtained in 24 hours. On this medium the gonococcus is viable for about seven days.—Swartz, Shohl and Davies, *Bull. Johns Hopkins Hosp.*, Dec., 1920, *Brit. Med. Jour.*, April 2, 1921.



**New Method of Adding Cresol to Antitoxins and Antiserums.**—A mixture of equal parts of ether and cresol is presented as a new preservative for antitoxins and serums. This mixture is added in amounts necessary to give the required concentration of cresol. The addition of this mixture causes much less precipitate than does cresol alone. Subsequent precipitation is not necessarily limited by the ether, it is never greater than that in products containing cresol alone. The mixture of ether and cresol is more strongly antiseptic than cresol alone. In therapeutic application, the ether is not a disadvantage. In the case of intravenously injected antitoxin, the indication that the ether may under certain circumstances reduce the incidence of adverse reactions warrants further comparative work. Ether may be added to the toxin-antitoxin mixture without disturbing the balance of the mixture.—Charles Krumwiede and Edwin J. Banzhaf, *Jour. Inf. Dis.*, 28, 367, (1921).



**Vitality and Viability of Hemolytic Streptococci in Water.**—Hemolytic streptococci, when placed in water, remain alive for a variable length of time, depending upon their number, upon the temperature, upon the presence of other organisms, and upon virulence. They are capable under special conditions, of retaining their vitality for a long time, but under natural conditions, if placed in water, they will succumb quite rapidly, especially if recently isolated.—George S. Livingston, *Am. Jour. Hyg.*, 1, 239. (1921.)



**Effect of Vaccination Against Influenza and Some Other Respiratory Infections.**—The prophylactic effect of a widely used vaccine containing Pfeiffer bacilli, streptococci and pneumococci has been studied clinically and statistically. The authors have recorded during a period of about 7 months the respiratory ailments which developed among 6,066 persons, approximately half of whom had received the vaccine. Some of these were attacked by influenza in the 1920 wave, which occurred within two months of the vaccination; in addition, the usual number of pneumonia and common cold cases among those observed afford material for comparisons. Rhinitis and bronchitis developed with frequency about equal in vaccinated and unvaccinated groups. The influenza attacks among the 2,873 vaccinated numbered 118 (4.1%) and among the 3,193 unvaccinated numbered 152 (4.8%); 7 pneumonia complications with 2 deaths occurring among the 118 vaccinated patients and 12 with 2 deaths in the 152 unvaccinated. Both the influenza and pneumonia attack rates are hence somewhat lower among the vaccinated, but the difference is not great. Pneumonia, not associated with influenza, was also less frequent among the vaccinated, only 6 of 19 pneumonia patients having been vaccinated. The small numbers hardly warrant, although they suggest, a favorable conclusion regarding some slight prophylactic value for pneumonia. That any considerable degree of protection against influenza was conferred by the vaccine seems unlikely.—Edwin O. Jordan and W. B. Sharp, *Jour. Inf. Dis.*, 28, 357, (1921).

**Cultivation of a Filtrable Organism from the Nasopharyngeal Washings in Influenza.**—A minute, filtrable, gram-negative organism has been isolated in pure culture from the nasopharyngeal washings of early cases of uncomplicated influenza. A typical clinical picture and characteristic pathologic changes have been produced in rabbits by the intratracheal inoculation of these cultures. Both initial cultures and subcultures have proved pathogenic for animals. The same clinical and pathologic manifestations were produced in a series of rabbits by the intratracheal inoculation of a culture kept at incubator temperature for fourteen months. The infectious agent has been car-

ried through several animal passages. The organism has been recovered in pure culture from the lungs of animals suffering from the experimental disease, and has been proved to be again virulent. All control studies have been negative.—Leo Loewe and Frederic D. Zeman, *Jour. A. M. A.*, 76, 986, (1921).

✱

**Preservation of Complement.**—The author reports the results of his trials with Rhamy's method of preserving complement for Wassermann tests, as described in the *Journal of A. M. A.*, Sept. 22, 1917, p. 973. Rhamy mixed fresh guinea-pig serum with a sterile 10% solution of sodium acetate in physiologic sodium chlorid solution in the proportion of 4:6. Hammersehmidt confirms that by this method complement can be preserved for at least ten days (possibly longer) without loss of strength.—J. Hammerschmidt, *Muench. Med. Woch. Schr.*, 67, 1382 (1920); *Jour. A. M. A.*, 76, 973 (1921).

✱

**Fibrin and Serum as a Culture Medium for Tissues.**—A technic is described by which a medium composed of fibrinogen suspension, serum, and embryo juice may be made. Fibroblasts grew in this medium about as well as in plasma and embryo juice. A strain of connective tissue remained practically as active as the control for several passages.—Albert H. Ebeling, *Jour. Exp. Med.*, 33, 641, (1921).

✱

**Increase of Blood Uric Acid in the Toxemias of Pregnancy.**—In the blood of patients with eclampsia, hyperemesis gravidarum, and with the symptoms of preëclamptic toxemia together with arterial hypertension, the uric acid is markedly increased. Delivery and recovery from the symptoms are associated with a gradual return of the uric acid in the blood to its normal amount. Arterial hypertension in pregnancy unassociated with toxic symptoms is not unaccompanied by uric acid retention. The toxic vomiting of pregnancy is associated with a marked increase of the uric acid in the blood, whereas the nervous or physiologic vomiting is not. It seems possible, therefore, to differentiate these conditions by quantitative estimations of the uric acid of the blood.—J. Lisle Williams, *Jour. A. M. A.*, 76, 1297, (1921).

**So-called Pleomorphic Streptococci from Human Respiratory Tract.**—The pleomorphic streptococci are not a homogeneous group. Both hemolytic and green producing types developed pleomorphism. The indications are that any strain of mouth streptococci may show pleomorphism if grown for a sufficient length of time on artificial mediums. It is probably that the development of pleomorphism is connected with relatively unfavorable conditions for growth. These, of course, may exist in the mouth under normal or pathologic conditions as well as on laboratory mediums.—John F. Norton, Katherine Rogers and Constantine Georgieff, *Jour. A. M. A.*, 76, 1003, (1921).

✦

**Nature of Effect of Blood Pigment on Growth of B. Influenzæ.**—Growth of *B. influenza* has not been observed by Fildes to occur in the total absence of blood pigment. The quantity of blood pigment necessary is small, but larger than has been stated. Probably oxyhemoglobin and carboxyhemoglobin are incapable of allowing growth, the feeble multiplication in these pigments being due to a spontaneous change to methemoglobin. Hematoporphyrin also fails to permit growth, but hematin allows a copious growth. The feebleness of the growth on unchanged blood compared with that on changed blood is due to a deviation of the oxygen, activated by the iron of the pigment, from the bacillus through the oxygen affinity of the unchanged pigment.—P. Fildes, *Brit. Jour. Exp. Pat.*, 2, 16, (1921); *Jour. A. M. A.*, 76, 1044, (1921).

✦

**Studies on the Behavior of Bacteria Toward Gentian Violet.**—A gentian-positive strain (a "strain-within-a-strain" variant) has been isolated from a pure culture of a gentian-negative organism. This observation corresponds to that of a "strain-within-a-species" variant, occurring in the enteritidis group, reported some years ago. The Gram reaction and the gentian reaction do not depend, as has been assumed in previous publications, on the specific affinity of the gentian violet molecule, since certain Gram-negative strains are shown to be gentian-positive. Dead bacterial bodies interposed between living bacteria and gentian violet media partially negative the

effect of the dye on Gram-positive organisms and allow them to grow. This seems to be either a phenomenon of filtration or of stimulation of growth.—John W. Churchman, *Jour. Exp. Med.*, 33, 569, (1921).

✦

**Fate of the Lymphocyte.**—Although the count of circulating lymphocytes in the blood stream remains constant, more lymphocytes enter the blood from the thoracic duct during 24 hours than are present in the blood at any one time. This excess of lymphocytes is not destroyed in the blood stream. The cells migrate from the blood vessels into the mucous membranes and through them to their surface. This occurs chiefly in the gastrointestinal tract, and it is apparently in the mucosa and especially within the intestinal lumen that the function of the lymphocyte is normally performed.—C. H. Bunting and John Huston, *Jour. Exp. Med.*, 33, 593, (1921).

✦

**Studies on Blood Changes in Pneumococcus Infections.**—In the occasional cases of pneumonia which show a decrease in the oxygen capacity of the blood, the decrease is probably due to a formation of methemoglobin. The latter is removed from the circulation, however, as rapidly as it is formed, so that it can seldom be detected even qualitatively, and is probably never a cause of cyanosis.—William C. Stadie, *Jour. Exp. Med.*, 33, 627, (1921).

✦

**Clinical Importance of Examination for Bile Pigments in Serum.**—The author describes a simple colorimetric method for determining bilirubin in the citrated serum; 1 cc. is placed in a test tube of the same diameter as that in which the standard color is kept, and is diluted with a solution of 0.9% sodium-chlorid solution until the dilution has the same tint as the standard color. This is a 1:10,000 solution of potassium bichromate. The dilution figure is the figure which shows how many times the icteric serum can be diluted, before it becomes like normal serum. Bilirubinuria appears only after some period of diseases, while the blood examination allows a much finer analysis of the condition at an early stage. In many cases of icterus, urobilinuria is absent.—E. Meulengracht, *Acta Medica Scandinavica, Stockholm*, 53, 827 (1921).

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His highness yet doth speak: and holds belief,

That being brought into the open air,  
It would allay the burning quality  
Of the fell poison which assaileth him.

—*Shakespeare-Pembroke.*

✦

## Healthgrams

Many a cough leads to a coffin.

A little prevention may save a month of quarantine.

Self-protection is the first law of nature.

Spitting in one's face has always been regarded as a deadly insult. Coughing in the other person's face is equally bad—besides spreading infection.—*Buffalo Health Bulletin.*

✦

## Doing Well

Dr. Pill—How are you getting along since you discovered that cure for colds?

Dr. Nostrum—Oh, I'm filling my coughers.—*Boston Transcript.*

✦

## Common Cup—Common Cold

Mary had a drinking cup,

'Twas shiny, bright and new;

She passed it 'round to Johnnie,

And Willie used it, too.

They got a drink, but sad to tell,

They got poor Mary's cold as well.

—*Rhode Island Almanac.*

✦

## Safety First

"Why do you use such a long cigar holder?"

"The doctor told me to keep away from tobacco."—*Michigan Public Health.*

✦

## Health Hints

When in *doubt*, use the laboratory.

Are you getting eight hours sleep daily?

The weather conditions should be the guide in determining the time to discard the "heavies"—not the calendar.—*Kansas State Bulletin.*

✦

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Mrs. Johnson—"How does yo' feel dis mawnin,' Joe?"

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No person has the right to deprive his neighbor of health protection.—*Metropolitan Life Ins. Co. Circular on Smallpox.*



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San Francisco Paper—Educated gentleman, not strong enough to work, would marry wealthy, feeble old gentleman.



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—*Kansas State Bulletin.*



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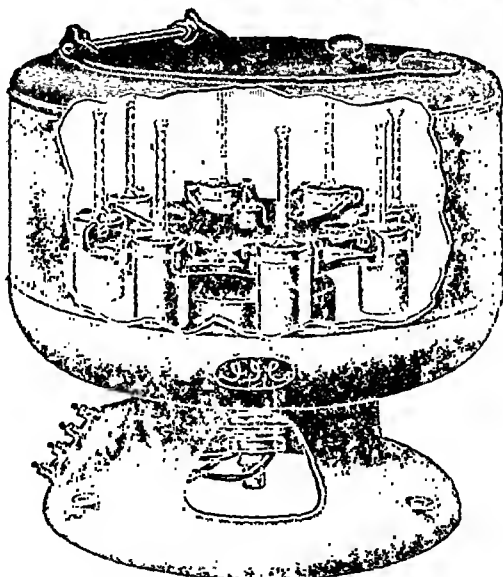
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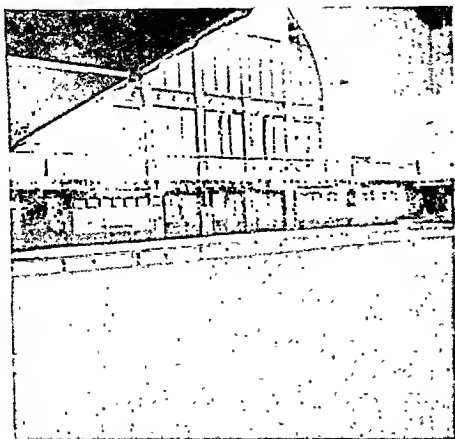
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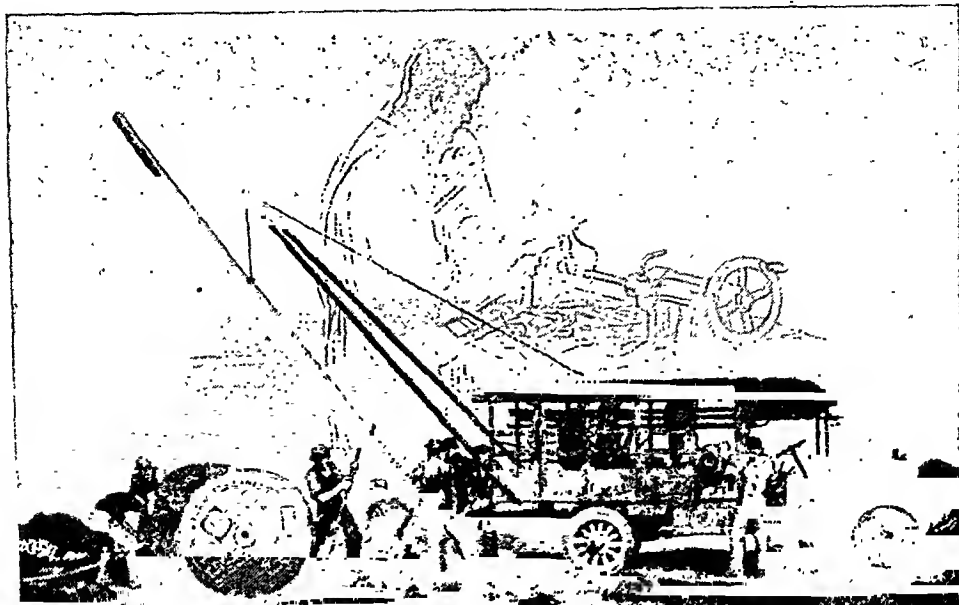
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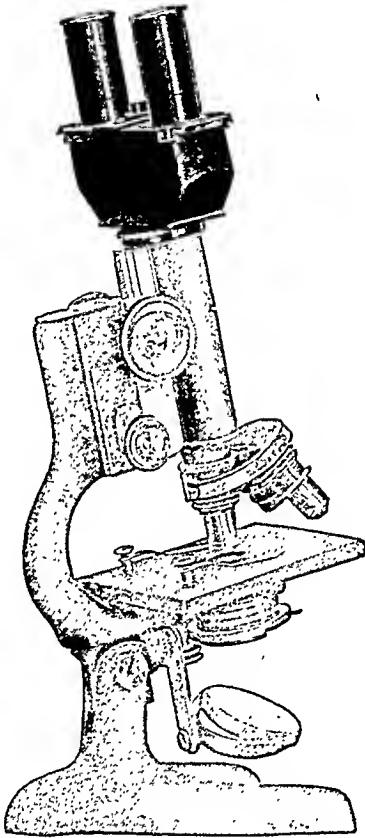
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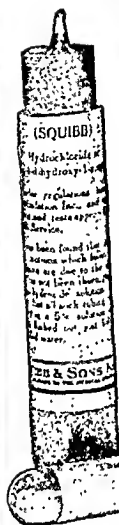
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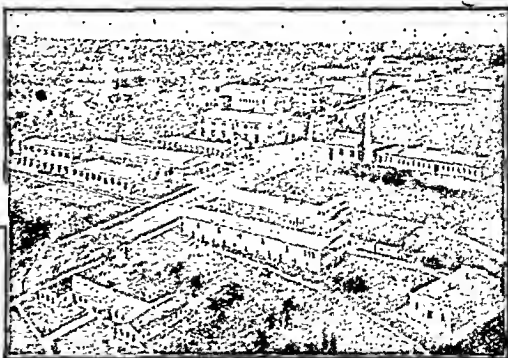
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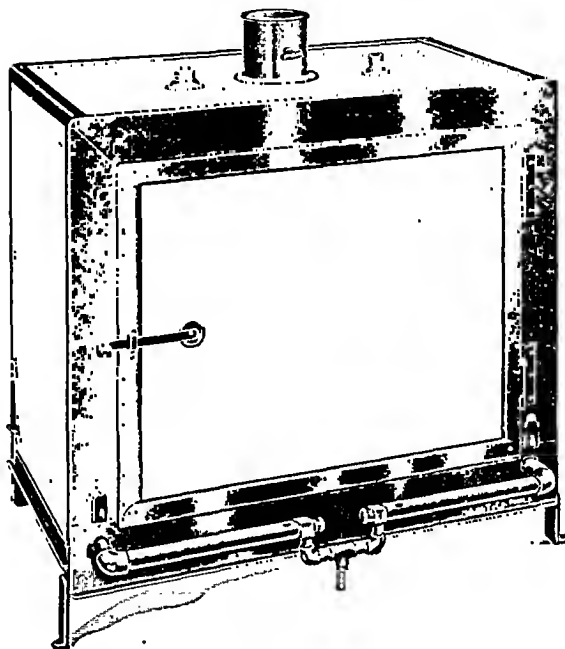
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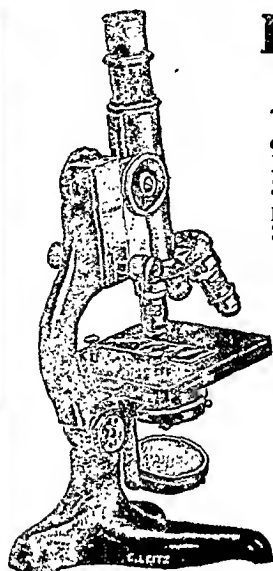
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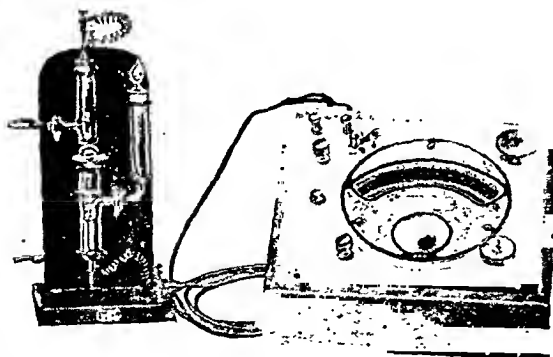
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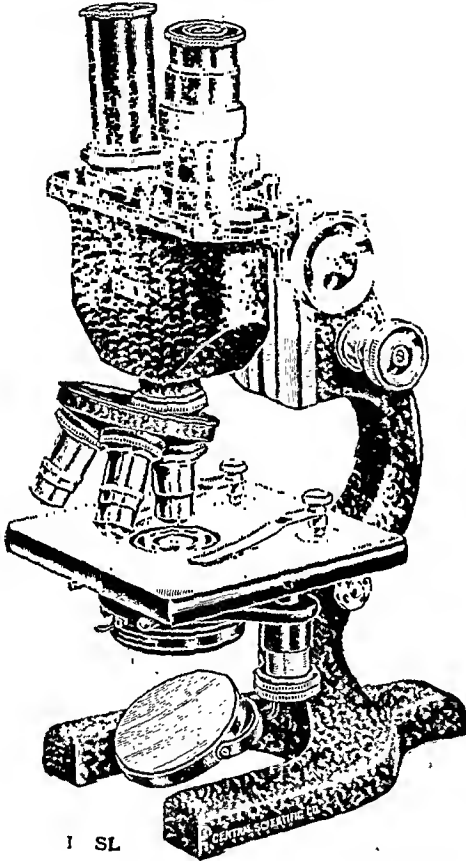
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## MEASLES AND ITS ALLIES

JAMES G. CUMMING, M.D., Dr.P.H.,  
*Ann Arbor, Michigan.*

War camp statistics are surprising in the evidence they afford that the camps were nurseries of carrier-borne infections and their complications. This author emphasizes the need of attention to the carrier, who is a very important health risk. Prevention here demands sanitary attention in inter-epidemic times as well as during the run of epidemics.

IN a previous article<sup>1</sup> attention was called to the following findings in our investigations of epidemic measles: That the so-called "virulence of measles" depends on the healthy carrier rate. The laboratory examinations showed that the healthy pneumonia carrier rate increases with exposure to mass grouping. In the army only two percent of the deaths attributed to measles were uncomplicated; all others were due almost wholly to pneumonia or its related complications; so then, it is not the measles case rate, but the case fatality rate—that is, the complication rate minus the recoveries—which determines the mortality attributed to this disease. Since the measles case fatality rate is an index of the pneumonia (hemolytic streptococcus) carrier rate, this case fatality rate is essential in an epidemiologic study of measles.

<sup>1</sup>Cumming: Measles Virulence; Explanation of Variation, *Military Surgeon*, June, 1921.

Passing from this establishment of a relationship is mass grouping between the increased pneumonia carrier rate and the virulence of a measles epidemic, this paper will show that measles complications increase with the length of exposure and the size of the group.

### SIZE OF THE GROUP

On several occasions Napoleon's armies were decimated by typhus fever, especially during the return from Moscow. The greatest scourge of McClellan's forces was malaria. In both armies there was mass grouping, wherein were scattered cases of healthy carriers; there was a lack of sanitary protection against the insect carriers of these diseases, and a high degree of mass susceptibility. Owing to such favorable conditions, there was a facility of transmission which culminated in a high disease incidence and high mortality. Here the fa-

cility of transmission, resulting from mass grouping and from the prevalence of the insect carrier, was of prime importance in determining the disease incidence. Today the mass grouping is disregarded, since it has been recognized that the breaking of a single link—the insect-carrier link—in the chain of conditions reduces the mortality to almost zero. This was the situation when our troops entered the World's War. In that war the insignificant mortality from the insect-borne infections was due to an understanding of the control of the insect carriers of these diseases. In contrast to this the saliva-borne infections, especially the pneumonias, reaped a toll in lives perhaps never equaled in any war, and this is because we have not blocked the major avenue of transmission. Have we not an epidemiologic complex in the saliva-borne infections similar to that which is now obvious in the evolution of the insect-borne diseases?

"During the nineteenth century it was generally believed that great hardships, cold, lack of the necessities of life, and the consequent consumption of spoiled foodstuffs, gave rise to typhus and other fevers<sup>2</sup>."

In the control of typhus we now recognize and concentrate on the single avenue of transmission; whereas in our combat with the saliva-borne infections, are not our energies diffused? Parallel with the nineteenth century theorists, who termed typhus "hunger fever," and attribute it to lack of food, we, today, cling to theories dealing with lack of food, inadequate clothing, overwork, exposure, which, we say, lower resistance on part of individual and community. On this basis, during the recent war, were offered explanations for the increased prevalence, in the army over the civil population, of epidemic diseases. The same theories were advanced to account for the recent pandemic of influenza-pneumonia. But we no longer take these

items into consideration in fighting the insect-borne infections, even in mass groupings; moreover, in the saliva-borne infections, also, are they not of minor importance in the prevention of mortality and invalidity? It would seem that we might profit in our prevention of the saliva-borne diseases by applying that established principle of prevention which now successfully controls the insect-borne infections; the principle of blocking the major avenue of transmission; in saliva-borne diseases the avenues of indirect contact.

Prevention of transmission is fundamental in disease control, and theories having to do with individual susceptibility are but markings of time through which no gain is made.

During the recent war there was a high mortality from the saliva-borne infections. Here was the mass grouping, the scattered healthy carriers, and lack of sanitary protection resulting in a facility of transmission from the carrier to the susceptible individual. In this case the extent and facility of transmission depended on two factors: the size of the group and the sanitary protection. The larger the group the greater was the contact between the carrier and the non-carrier; in addition, disease transmission resulting from this contact was in direct ratio to the degree of sanitary protection and the duration of exposure.

#### EPIDEMIOLOGIC MECHANISM OF THE CARRIER STATE LEADING TO MORTALITY.

Among our troops during 1918, 98% of the total deaths attributed to measles were due to complications. These were due chiefly to the pneumonia-producing group of organisms, and among them the hemolytic streptococcus played the stellar role. We are not then interested in the prevention of measles mortality *per se*, but rather in the prevention of mortality resulting from measles complications. Our chief aim, then, must be blocking the avenues of transmission of

<sup>2</sup>Prinzling. Epidemics resulting from wars.

the potentially dangerous group of pneumonia-producing organisms.

Prior to 1916 the hemolytic streptococcus carrier rate in civil communities was approximately 5%. This gives five carrier to each hundred civilians, or an average of one carrier in each five families. Since families are more or less isolated, cross infections from one family to another are not as common as among troops. So this carrier infection is largely a family infection, just as is tuberculosis. But this isolated small group infection applies only to the civil population. On the other hand, in the army we had large groups, company messes of 250 men. These came from many family groups; as a result in each company of recruits there were approximately 13 hemolytic streptococcus carriers, the civilian rate of 5%. Here, however, we no longer have the small family group, living under the average civilian sanitary protection; rather we have an unwieldy mass grouping, in which the sanitary protection is inferior to that hitherto afforded in the more secluded family group. While in some European countries where the standard of living is very low, there may be a raised sanitary protection to the civilian entering the army, the American plan of living is sufficiently high so that a lowered sanitary protection follows mass grouping and mass exposure. This lowered sanitary protection is indicated by an increased incidence and an increased mortality from the epidemic diseases, and also by an increase in the case fatality rate proportionate to the length of service. At the start there were but few carriers; despite this fact, mass grouping and the facility of transmission soon resulted in an increased carrier rate and the appearance of virus diseases in epidemic form with a gradually increasing pneumonia complication rate.

In order to trace the several steps leading to death following measles infection, let us assume that one has acquired, at the age of 15, a tonsillar infection of

streptococcus hemolyticus. This individual is fortunate in passing through adolescence without acquiring measles infection; moreover, as an adult civilian the chances are he will escape measles, owing to the low prevalence of this disease among civilian adults. In this civilian group there is sufficient sanitary protection to prevent the prevalence of measles, but at the age of 25 years he is among a million soldiers mobilized for war. Although the carrier state is significant at all times, it is now that the tonsillar carrier of the potentially dangerous group of pneumonia-producing organisms, including the hemolytic streptococcus, becomes a menace to the success of the army and of industries. During times of war, in the army, as in civil life, there is a let down in sanitary protection; there is the exposure of mass grouping, and a resultant increase in the epidemic diseases—an example of this is the 1918 influenza-pneumonia epidemic.

Detention camps, while mitigating the danger in mass grouping as far as certain diseases, such as typhus or the acute virus infections are concerned, are ineffective against the hemolytic streptococcus carrier. This condition is not temporary; the task of individual bacteriologic examination would be overwhelming for inspection is not sufficient to identify the hemolytic streptococcus carrier. The elimination of this carrier state would then necessitate the removal of the tonsils of 5% of the entrants, or the segregation of these in organizations more or less isolated. Inasmuch as some of the carriers would be missed, even with bacteriologic examination, the necessity of breaking the chain in all groups would not be eliminated. It appears, therefore, that the non-accumulation of carriers would depend upon continuous sanitary protection.

If we again take up the steps leading to death from measles, and follow the soldier who at the age of 15 became a tonsillar carrier of hemolytic strepto-

coccus, we find that, owing to inadequate sanitary protection in the camps there resulted a prevalence of measles, and he became infected with this disease. Measles uncomplicated is unable to inflict death, but the hemolytic streptococci in the tonsil have stalked this individual for 10 years, awaiting an opportunity when his resistance might be lowered. The attack of measles provided this lowered resistance and the streptococci—displaying intelligence, as it were, much as the jackal “senses” his injured prey—take advantage of this condition, and extend their activities from the tonsil to the lung tissue, resulting in pneumonia; from lungs to pleural cavity, resulting in empyema; thence to the blood stream, resulting in septicemia. The termination is death caused by this stalking organism.

In addition, this streptococcus carrier, prior to his illness, furnished a source of infection for those about him, and in every group of 100 we started with five such carriers. There was the mass grouping and the facility of transmission; consequently as time went on, there were newly infected individuals, thus augmenting the number of sources for those not yet infected. The result was an accumulative transmission rate which paralleled the accumulative carrier or source rate. Thus there was constant establishment of new foci, so that from five carriers to every 100, the ratio reached as high, in some groups, as 35 to 100. The carrier state is not only a source of danger to the carrier, but to others as well. The carrier will cease to be a danger to others only when the avenue of transmission is successfully blocked; when this is done the carrier rate will decrease.

MEASLES COMPLICATION RATE AS INFLUENCED BY THE LENGTH OF SERVICE

In the following discussion of statistical records of camps in the United States, it is shown that the measles complication rate increased with successive

periods of the war, moreover that for the last period—October-December 1918, the complication rate varied in proportion to the percentage of recruits.

OCTOBER-DECEMBER 1917

In 27 large camps for which measles and its complication are here considered it is noted that with a few exceptions, to be considered later, there is a definite and marked increase in the percentage of complications for the succeeding period of the war. For October 1917, when practically all soldiers in the camps in the United States were recruits the percentage of complications varied from zero at Camp Custer, to 13 at Camp Sevier, and for November of that year from 2% at Custer to 14% at Sevier, and for December from 9% at Taylor to 39% at Sevier.<sup>3</sup>

The extreme percentages for measles complications—not at the same camp, but at different camps—are zero for October to 39% for December. The greatest increase in the carrier or complication rate occurred at Camp Sevier, where the October rate was 13% and the December rate 39%. This camp, composed of Southern troops, started its epidemic with a high complication or carrier rate. There was an early high source rate and a consequent high transmission rate for this period, conditions which, at the culmination of the epidemic in December, resulted in an excessive carrier rate. The records of this camp demonstrate the influence of a high beginning pneumonia carrier source rate. We find that at Doniphan, while the complication rate for October was zero, the combined rate for November and December was only 5% for over 1,000 cases. Evidently at this camp there were only a few sources at the beginning, and therefore few transmissions, resulting in but few complications.

The smallest increase in the complication rate was at Camp Travis where it

<sup>3</sup>Statistical data here presented were compiled from the 1919 Annual Report of the Surgeon General, U. S. Army.

was 9% for October and 10% for December. In view of the comparatively high complication rate for October, with its high source and transmission rate, one would expect a higher complication rate for December than actually occurred. About half the command at this camp, however, arrived late—during October November—so here we have a comparatively low December complication rate because of the large percentage of recruits, who, as has been stated above, have the civilian carrier rate of 5%. So, notwithstanding the high beginning complication rate, the high source rate, and a possible high transmission rate, there was a comparatively low December complication rate due to the large number of recent arrivals who had not, as yet, acquired a high carrier rate.

For this first three months period here considered, the average complication rate for all camps increased with each succeeding month. The percentage of measles complications for October was 6.1; for November 7.6; and for December 8.3 with an average for the period of 7.8%. The complication rate is an accurate index of the pneumonia healthy carrier rate. Both these rates increase with the seasoning of soldiers. At certain camps, however, there was no marked increase in the complication rate for December, owing to the dilution of the number of seasoned soldiers by recruits. In this connection it is pointed out that for the first quarter of 1918 the complication rate at Camp Travis increased to 24%. Later we note the effect of the arrival of another lot of recruits in the fall of 1918. In October of that year the command consisted of 60% recruits and there was no marked increase in the complication rate for the last quarter, 25%, over that for the first quarter, 24%. In contrast to this rate for the last quarter of 1918 at Travis with its large percentage of recruits, attention is called to the excessive rates for these months at Camp Hancock, 38%, and at

Camp Jackson, 49%, where there were few recruits in the fall.

#### JANUARY-MARCH, 1918

During this period the lowest rate, 1.5%, was at Camp Dodge, and the highest, 40%, at Camps Bowie and Sevier. The low rate for this quarter at Dodge explained by the arrival of 15,000 recruits on February 15, and the occurrence of the majority of measles cases during March. In other words, the command was composed of about 60% recruits, hence the low complication rate, 15%, at that camp in contrast to the high rate, 40%, at Camps Bowie and Sevier, where there were only 436 entrants subsequent to October 15, 1917.

With few exceptions which are explained on the basis of a large percentage of recruits, the complication rate at all camps for the first quarter of 1918 showed a marked increase over the last quarter of 1917. The average rate for the latter period was 8% complications and for the former 25%. For the first quarter of 1918 it may be said that the camps had become stable. There were but few recent entrants; practically all men had become seasoned by several months of service. The seasoning of soldiers, with its resultant high carrier rate of the potentially dangerous group of pneumonia-producing organisms, makes plain the reason for the increasing complication rates and the almost universal high rate for the first quarter of 1918. Corrective sanitary protection against the transmission of the dangerous carrier group of organisms is our only hope for protecting men in large groups, be they civilians or seasoned soldiers, against a high carrier rate.

Since there was a low incidence of measles during the second and third quarter of 1918, the summer months, these two periods are not entered into in the present discussion.

#### OCTOBER-DECEMBER, 1918

In the following consideration of the last quarter of 1918, an attempt will be



made, as in the previous discussion, to show that the inadequacy of sanitary protection—with the resultant high carrier rate among seasoned soldiers, and the percentage of recruits at the several camps, were factors of prime importance in determining the measles complication rate. During this period the average complication rate for all camps was 26%. Since the rate for the first quarter is but 25%, it is plain there was no marked increase for the last quarter over the first. The first quarter of 1918 was a stable period, with partially seasoned troops and but few recruits. On the other hand, during the last quarter, the troops were composed of fully seasoned soldiers diluted with about 50% recruits. This dilution of fully seasoned troops by recruits is accounted for by the fact that during the summer and autumn of 1918 many divisions departed for overseas, and to replace these losses the camps were filled with recruits. Despite this exodus many seasoned soldiers, with their high pneumonia carrier rate remained in the camps; thus already established were innumerable sources for the extension of the carrier state among recent arrivals.

The lowest complication rate for this period was 7% at Camp Grant. At this camp were 66% recruits, and inasmuch as the complication rate for the camp was the same as it was during the fall of 1917, it is perhaps reasonable to assume that practically all cases of measles occurred among the new arrivals. At Camp Gordon there was a complication rate of 52%, the highest in any camp. There were 35% recruits at Camp Gordon, and in view of the complication rate we may assume that the majority of measles cases occurred among seasoned soldiers. Attention is called to the recruit percentages and the complication rates at these two camps because they represent an exception to the general rule, that the higher the percentage of recruits the lower will be the percentage of complication. Here the percentage of

recruits is calculated on the number of entrants during the two months prior to the peak months of measles cases.

#### PERCENTAGE OF RECRUITS DETERMINES COMPLICATION RATE

If the complication rate is analyzed on a basis of the percentage of recruits at the camps during the last quarter of 1918, it is found that at 15 camps having over 50% recruits, there were 18% complications. In this group of camps there were 3,164 cases of measles and 571 complications, or a complication rate of 18%. In contrast to this it is found that at 12 camps, where there were but 50% or less recruits, there occurred 2,999 cases and 847 complications, or a rate of 28%. It is then, the seasoned soldier, rather than the recruit, who is prone to complications and more liable to succumb.

If we still further analyze the complication rates on the basis of four groupings of camps arranged upon the percentage of recruits, the following table shows the result:

Groups	Camps having recruit percentage of	Cases	Complications	Percent
Group I (3 camps)	100 to 76	654	113	= 17.
Group II (12 camps)	75 to 51	2510	458	= 18.2
Group III (5 camps)	50 to 26	1282	239	= 18.7
Group IV (7 camps)	25 to 0	1717	603	= 35.

In the above tabulation it will be noted that as the recruit percentage decreases, or as the seasoned soldier percentage increases, the complication rate increases.

#### 100% TO 76% RECRUITS

In Group I (camps having a recruit percentage of 100 to 76) it is found that the lowest complication, 6%, occurred at Camp Wadsworth. At this camp the highest incidence of measles was in December; in spite of the late occurrence of the majority of cases, there was a low complication rate. The men in this camp were of the late October draft. There were no seasoned soldiers with a high carrier rate; consequently there were no sources other than those among the recruits themselves; the complication rate for December cases might well be low

under these conditions. Attention is called to the fact that this was the only camp with 100% recruits for the last quarter of 1918 and that it had the lowest complication rate, 6%. In this respect it is similar to all camps for the last quarter of 1917. Its complication rate for 1918 should then be the same as for 1917, and that was the case. At Camp Sherman there was a proportion of 96% of September and October recruits to 4% of seasoned soldiers. About 60% of the measles incidence occurred during November; here the complication rate was 17%, or considerably higher than at Wadsworth. At Camp Beauregard the command was composed of 78% of September recruits and 22% seasoned soldiers. The majority of the measles cases at this camp occurred during November and December. It is, of course, not known whether there was a greater prevalence of the infection among the seasoned soldiers or among the recruits, but it is apparent that if 22% of the command were seasoned soldiers, the high carrier rate of the pneumonia group of organisms among such soldiers would furnish a high percentage of source for the recent entrants, who would acquire the carrier state more rapidly than at Wadsworth, where there were no seasoned soldiers. The complication rate at Wadsworth was only 6% compared with 22% at Camp Beauregard.

#### 75% TO 51% RECRUITS

In Group II (camps having a recruit percentage of from 75 to 51) the lowest complication rate was 7% at Camp Grant and the highest 38% at Camp Wheeler. It is noted that the percentage of complications at each camp for the three-months period is not wholly significant. It is an average for those three months only; on analysis it is found, for example, that at Camp Pike there was a 15% complication rate for the three months, but for December alone there was a 30% rate. Again, at Sevier, the rate for the entire period was 18%, but

for the succeeding three months there was an increasing rate due to the increasing carrier rate resulting from increasing length of service. This is shown in the following table:

	Cases	Complications	Percent
October, 1918 .....	27	2	7
November, 1918 ...	63	2	3
December, 1918 ...	40	14	35

Mention should here be made of the fact that while at Wheeler and Sevier, as at most camps, the increasing complication rate paralleled the increasing exposure to the pneumonia carrier state, there were exceptions to this rule as applied to the successive months in this period. But we have in this group of camps both seasoned soldiers and recruits; moreover the prevalence of complications in any month may be influenced by the predominance of measles cases among either the seasoned soldiers or the recruits.

#### 50% TO 26% RECRUITS

For Group III (camps having a recruit percentage of 50 to 26) the lowest complication rate was 10% at Camp Lee and the highest 52% at Camp Gordon. The average was 18.7%. Here we have a low dilution of recruits; therefore we start with a high carrier rate already established among the seasoned soldiers. In this group the complication rate for October may be greater than that for December. This was so at Camp Meade, as is shown in the following table:

	Cases	Complications	Percent
October, 1918 .....	55	11	20
November, 1918 ...	161	22	13
December, 1918 ...	103	10	9

This camp had a strength of 40,441 men and 14,000 entered between September and November. In view of the decrease, rather than the increase, in the complication rates for the successive months of the period, it is believed that the October cases occurred chiefly among the seasoned soldiers, and that from these as foci of distribution, the infection.

gradually extended to the more recent arrivals. This involvement of new arrivals, with fewer carriers among them, reduced the complication rate for the latter months of the quarter. This explanation is offered simply to account for the decreasing complication rates by months, but here we are interested mainly in the average percentage of complications by three months periods, on the basis of the percentage of recruits in the group.

#### 25% TO 0% RECRUITS

Group IV, the seven camps having a recruit rate of 25% or less, stands out as a striking example of the complication rate of measles as influenced by the so-called seasoning of soldiers. The lowest rate occurred at Sheridan where the complication rate was 13%. In view of the fact that there were no recruits at this camp, this percentage indicates that here there was good sanitary protection against the dissemination of the potentially dangerous pneumonia group. The highest rate was at Camp Jackson, where there was a 49% complication rate.

In this Group, consisting almost entirely of seasoned soldiers, in contradistinction to the other groups considered, it is found that there is a more nearly uniform rate for each succeeding month of the quarter. For example, at Camps Hancock and Taylor, where there were few recruits, it will be found in the following tabulation that there was a uniform high complication rate for all three months:

#### CAMP HANCOCK

	Cases	Complications	Percent
October, 1918 .....	108	51	49
November, 1918 ...	238	76	22
December, 1918 ...	56	17	30

#### CAMP TAYLOR

	Cases	Complications	Percent
October, 1918 .....	435	136	31
November, 1918 ...	152	48	32
December, 1918 ...	24	7	29

For the seven camps in this group there was an average of 35% complications. This is by far the highest rate for any group, as well as for any period

among troops in the United States. It will be recalled that the average rate for the last quarter of 1917 was 7.8%. During this period all soldiers were recent entrants. For the first quarter of 1918 the rate had increased to 25%. During this period there were no recruits; camps had become stabilized; as a result the rates for all camps were similar. This was not so in the last quarter of 1918. During this quarter the camps were composed of over 50 recruits. Complications varied from 6 to 52% and the average for the period was 23%. Camps having the highest percentage of recruits had the lowest complication rate; while those having the highest percentage of seasoned soldiers had the highest complication rate. The sum total of greatest exposure among troops in the United States occurred in that group of camps where there was the highest percentage of seasoned soldiers for the last quarter of 1918. This is represented by a 35% complication rate among measles patients. These increasing rates parallel the increasing exposure, the increasing transmission rates, the cumulative exposure and the cumulative carrier rates.

#### Measles and its Complications

	Measles Cases	Complications	Percent Complications
October, 1917 .....	1666	103	6.1
November, 1917 ...	13161	1006	7.6
December, 1917 ...	14487	1212	8.3
Total .....	29314	2321	7.8
Jan.-Mar., 1918 ...	8262	2072	25
Oct.-Dec. ....	*4446	*810	*18
	**1717	**603	**35
Total .....	14425	3485	24

\*Camps having 100% to 26% recruits.

\*\*Camps having 25% to 0% recruits.

This tabulation is a consolidation of measles cases, complications, and percentage complications for the successive periods of the war; those for 1917 have increasing complication rates; while the rates for 1918 are greatly in excess of those for 1917: During October, 1917, complications caused but 13 deaths per 1,000 cases of measles; while for the

period October-December of the same year there were 20 deaths per 1,000 cases. In 1918 among troops in training in the United States, including recruits, there were 23 deaths per 1,000 cases, while for France there was an increase of 45 deaths per 1,000 cases of measles. Notwithstanding bettered hospital care, the case fatality rate increased because the pre-hospital carrier rate had increased. If all measles cases had occurred prior to the so-called seasoned soldier stage, the mortality attributed to this disease would have been reduced more than one-half.

During the period covered in this paper there were definite regulations relative to non-crowding and the use of the mask and the cubicle on measles wards. These regulations had as their basis the prevention of droplet infection; yet it is apparent from the record here presented that these measures did not prevent an

increase in the carrier rate for the potentially dangerous group of pneumonia organisms. In thus closing the minor transmission route of droplet infection, there were left unobstructed the two broader avenues of transmission; insanitary eating utensils and hand to mouth dissemination.

The tabulations are not carrier beyond 1918 because demobilization then commenced; could comparisons have been continued the results might have proved interesting, as in February, 1919, was issued the first general order relative to the sterilization of mess kits for the prevention of epidemic diseases. In considering mortality, the prevention of the epidemic diseases is not the first step; that step is rather the prevention of complications; the prevention of the carrier state, and this necessitates inter-epidemic, as well as epidemic, sanitary protection.



## TOBACCO IN ITS RELATIONSHIPS TO PUBLIC HEALTH

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THE use of tobacco has increased enormously in the United States in the past decade. Within the last 45 years the use of cigarettes has increased 700% in the United States. During this period certain diseases have increased very largely, such as heart trouble, apoplexy and Bright's disease. These are all primarily diseases of the blood vessels. These diseases are much more prevalent among American men from 45 to 60 than among any other nationality in the civilized world. They are much more prevalent among American men than American women. The long continued use of tobacco has a very marked effect upon the blood vessels of man and animal. Is it a mere coincidence that the increase

in these diseases goes along with the increased use of tobacco or not? Is it a mere coincidence that American men who use more tobacco than American women are much more susceptible to these diseases or not? Is it a mere coincidence that Americans who use much more tobacco per capita than the English should be affected by these special diseases? Thinking people are beginning to ask the question, is tobacco one of the contributing factors in the recent increase in these so-called diseases of degeneration or not?

Many untrue things have been said about tobacco. The person who is trying to prove that tobacco is harmful often uses every argument available. Many of these arguments will not "hold water."

They may be merely wanderings of the imagination, hearsays and ideas yet unproved. There is little evidence to support the sweeping statement that cigarette smoking in itself causes feeble mindedness and criminal tendencies in youths. It is probably true that cigarette smoking has a detrimental effect upon the immature brain cells of the youth, although to what extent this is true has not yet been found out. It probably is not entirely true that cigarette smoking accounts for all the low grade work done in school on the part of the smokers. It is true that feeble minded and criminally inclined boys are more apt to smoke than normal boys because they have less appreciation of the value of health, the wishes of parents and the disappointment of others. They also have less will power for breaking bad habits. So it might be said that smoking is as much an indication of subnormality as is subnormality a result of smoking. Poor school work may be the result of a general lowered morale of which smoking is one of the manifestations. Boys who smoke often show up much more poorly in school than those who do not smoke. It is often the case that the smoker is inferior to begin with. The smoker, when he becomes the non-smoker, generally improves in his work, due perhaps quite as much to his newly awakened interests as to his quitting smoking. When extravagant statements are made as to the injury done by tobacco, observing people learn that many of these statements are not true. They therefore fail to be impressed by them or perhaps are even made antagonistic. Thousands of the finest men in the country smoke and so far as the casual observer is concerned he cannot see any great harm done to them.

The question is, Is the increased use of tobacco detrimental to health? There are indications that it is. An increasingly larger number of business men are getting the feeling that the use of tobacco interferes with working efficiency at least

in youths. They are thus becoming less inclined to employ the youthful tobacco user. The statement has been made by prominent physicians and hygienists that adults who live a vigorous out-of-door life may use tobacco in moderation without producing evidences of injury. The recent findings of the Pasteur Institute would indicate that the long continued use of minute doses of poison ultimately causes appreciable harm. This then would indicate that even the so-called light user is measurably injured. One's judgment as to the harm done is worth very little. Most men seek to excuse themselves for their bad habits. The beginnings of a diseased condition are often observed by the physician long before they are suspected by the patient.

Tobacco has a specially selective effect upon the nervous system. It first acts as a stimulant, then finally as a depressant or narcotic. Physical and mental work are improved at the beginning in smoking, but are diminished in the end. Nervousness in the person who is of a nervous temperament is increased by the use of tobacco. It is also true that smoking is an indication of nervousness as well as is nervousness a result of smoking. The tired business or professional man is soothed and made comfortable after his evening meal by his smoke. He is temporarily relieved of his nervous tension. This feeling of comfort is followed in time by a slightly increased nervous irritability which necessitates another smoke. The final result is that the nervous man is made more nervous through the keeping up of the vicious circle.

Tobacco is, to a certain extent, a habit-forming drug. Some people become a habit-slave more easily than others. This in itself is most undesirable. The nervous person is more apt to become a habit-slave than others because his nervousness is temporarily relieved and he is less apt to be able to control bad habits. Extreme nervousness predisposes toward lack of will power.

The athletic trainer has observed,

though not often through the application of modern scientific methods, that the use of tobacco interferes with athletic efficiency in his men. For this reason he prohibits its use. Studies of college athletes would indicate that the most efficient men are the non-smokers. The power of the voluntary muscles is diminished on account of the ultimate depressing effects of tobacco upon the central nervous system. At Yale and Amherst and other colleges it has been noted that the non-users gained over the users in height, weight, chest-girth and lung capacity.

Nicotine is probably the most important poison in tobacco. It causes a marked increase in blood pressure through the stimulation of the adrenal glands. In time this extra strain upon the blood vessels produces thickening or sclerosis. Nicotine when taken into the system directly is a very powerful poison. A few drops are enough to kill a man. Most of the nicotine is destroyed in the smoking, so that but very small quantities get into the system at a time. This accounts for the fact that men use it for years without any apparent amount of harm.

Experiments worked out upon the Springfield College students would indicate that smoking causes an increase in heart-rate and blood-pressure after muscular exertion over and above normal, and that these were slower in coming back to normal than when smoking is not indulged in. This would mean unnecessary work done by the heart and blood vessels. The experiments also showed that muscular accuracy was diminished, because of unsteadiness of the skeletal muscles. Similar results have been gotten in rifle target practice in the army.

At tuberculosis sanatoriums it has been found that the mortality in the smokers

is higher than in the non-smokers. Tobacco smoke will irritate the mucous membrane of the throat and breathing tubes to the extent of lowering resistance to bacteria and thus make respiratory disease more frequent.

Life insurance companies find that the length of life of the smoker is less than that of the non-smoker. Recent experiments have been made upon groups of young men in which it is indicated that smoking lowers physical endurance. The death rate of children under one year of age of mothers working in the cigar factories of Vienna is high as compared to mothers working in other factories.

Tobacco has no place in medicine, therefore it is not listed in the pharmacopœia or official list of drugs.

Tobacco does give pleasure to the user through its sedative effect upon the nervous system. This pleasure, however, is overbalanced by detrimental effects. Many men are willing to have the pleasure at the expense of health and injury. Outside of the pleasure and satisfaction derived it is pretty difficult to recommend its use upon any other grounds, surely not on the ground of promoting health. In addition there are a good many arguments resulting from recent investigations which would substantiate the statement that tobacco is injurious to health. It is fundamentally a narcotic drug and all narcotic drugs are dangerous when used habitually and in substantial doses. Years of extra work done by heart and blood vessels mean premature wearing out and thus the shortening of life.

If tobacco is a serious injury to our public health the fact should be determined in a scientific way and proper measures taken by health authorities along lines of prevention.



### HEALTH INSTITUTE

**Make your arrangements so that you can attend the Health Institute of the A. P. H. A. in New York City one week before the Annual Meeting.**

# COUNTY HEALTH ADMINISTRATION IN LOS ANGELES COUNTY

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Read before Public Health Administration Section, American Public Health Association, at San Francisco, Cal., September 15, 1920.

Progress in public health work demands simplified administration. Los Angeles County is striving to meet the demands of efficiency plus economy by effecting consolidation of health services with cities. The County has already established a co-ordinated social service with the cities within it. The County Health Office is meeting the problem by making contracts with the cities for specified units of service.

IN outlining the problem of county health administration I find it naturally divides itself into the following heads:

- I. Political.
- II. Legal.
- III. Epidemiologic.
- IV. Economic.

When it is considered that there are about 3,000 county governments in the United States, and that at least 50% of our people reside in rural districts, with the enormous importance of the food supplies produced in rural districts, it behooves us to study carefully all phases of betterment of the public health of counties. It is the purpose of this paper to contribute from the experience of the last six years a brief sketch of our successes and failures in reorganizing the public health work of Los Angeles County.

## I. POLITICAL CONSIDERATIONS

Until quite recent date, an efficient county government was almost unheard of. Founded upon the need of administration of local justice, and later developed as a means of administering poor relief, the building of roads and bridges, etc., county government

later expanded to meet the lack of any other local government, and, in the opinion of most authorities, has been the playground of politicians. Not only has the county been put to the severe test of political efficiency for itself, but it has had to struggle, on the one hand with domination by the state, and second with the growing competition of the enlarging functions of cities. In its earlier development, the county served as an instrument for the local functions of the state government. New counties were formed from time to time as needs arose. In each of these counties was a loose but more or less complete organization, which was dominated, to a large extent, by the state government. The grave defect in county government was the lack of one responsible head and the serious lack of flexibility for legislative enactments. Many special bills were passed by legislatures creating additional taxes for counties, and imposing administrative schemes, largely to be controlled by state machinery.

On the other hand, the county has had to face the competition of the highly differentiated functions of mod-

ern city government reaching out in public welfare work, such as milk inspection, food inspection, and especially a higher type of educational and recreational activities. Public health, so far as most counties have been concerned, had scarcely received serious attention until the last few years. The development of efficient public health service for a county rests upon the development of stable, efficient, general political government for counties.

Gilbertson states as follows: "Ideally (the county) is to be a supervised local subdivision of the state administration, such supervision to insure strict accountability, but to be unobstructive; it is to be relieved by the state of not a few incompatible, back-breaking burdens. It is to have, with some necessary limitations, a free hand in making over its internal organization, for whatever obligations may be laid upon it in the future." (Page 168, "The County.")

In another section he states, "The cornerstone ever is simplicity; one set of officials to elect and watch, one place to go to get things done, one source to which to direct criticism when things go wrong."

In fulfilling these ideals, the people of Los Angeles County adopted, in 1912, the charter form of government. In the words of Judge Lewis R. Works, the aim of the charter was as follows: "The average American citizen knows less about the government of his county than about any other public matter which merits his attention. This is owing to the fact that county government, so-called, is not county self-government at all, but simply state government of counties. No man can be expected to become easily intimate with a government the source of which is far away, even though it prescribes a system local in its application. The Los Angeles County charter is a concrete presentation of the idea, cer-

tainly a just one, that the right of local self-government belongs to a county as well as to any political subdivision."

Authority at present is strongly centralized in the Board of Supervisors, which is a close approximation to the commission form of city government. The Board of Supervisors is required to publish a code of rules prescribing the duties and management of all subdivisions of the county and enforce these rules. The number of elective officers was reduced, the merit system adopted through Civil Service, the fee system for compensation for officers was abolished, and many important powers and duties were created, all aiming towards public efficiency. The charter of Los Angeles is regarded by authorities as being a long step toward the fulfillment of the ideal of county government. With this introduction into the problem, I will now consider the problems more closely related to public health.

In assuming charge of the Health Department in 1915, we found already that very great progress towards efficiency had been secured in many lines of activity. Where the County could perform public business for cities more economically or efficiently, a reorganization was already in progress. The County had assumed such functions as the distribution of outdoor relief, assessing and collection of taxes, provision for free libraries, supervision of standards for weights and measures, and provisions for hospital care of the poor. Analysis of the public health situation at that time revealed the following:

## II. LEGAL CONSIDERATIONS

The State law required that each county must maintain a County Health Officer, whose jurisdiction was the unincorporated territory alone. The law did not provide for the assumption and performance by the county health



officer of the duties of city health officers. Each city was required to provide a board of health or health officer to function for said city. In addition, cities could maintain milk inspection in the rural districts under a special act, and school boards could also maintain health supervision of school children by districts, independently of any other existing health authority. In addition to these local authorities, there were several state bureaus supervising many phases of public health throughout the county. Birth and death registration was again subdivided into independent registration districts, not coördinated with the County Health Office, and with no central bureau in the county.

We had, consequently, in 1915 this problem: A county of about 4,000 square miles with a health jurisdiction only over the unincorporated districts, approximately 3,400 square miles; no central bureau of registration of births and deaths, no plan of coördination of health work, and with 37 independent municipal health officers, mostly part-time, and 167 school districts, each of which was independently charged with the health supervision of all matters save contagious disease.

Progressive cities had reached out into the county and had organized milk and food inspection, so far as their respective cities were concerned. The boundary lines of school districts not being coextensive with municipalities, certain city boards of education were actively supervising the health of city schools, though the schools were actually located in unincorporated territory.

As a result of a study of these complex factors, it became at once apparent that the success of the administration by the County in many other departments for cities, such as poor relief, etc., might be duplicated along the lines of public health. To this end a

law was secured providing for the assumption and discharge of any or all functions relating to public health in any city by the County Health Officer, through contracts for service, to be made between the governing bodies represented. This was the first step towards the formation of a coördinated health service throughout Los Angeles County.

During the last two years the County Health Office has obtained contracts with three cities in Los Angeles County for the performance of their public health work, and this work is being efficiently carried out. We do not claim that this form of organization is as yet perfect, but as an entering wedge, the flexibility of the system enables us to make much greater progress than with a more rigid law. There is serious need of State participation in the formation of contracts of this nature, if not for the actual financial aid, then for the moral support and to solidify public opinion.

### III. EPIDEMIOLOGICAL FACTORS

The plan of centralized public health control by the county in Los Angeles is strongly supported by a consideration of the factors relating to the control of contagious disease. The spread of infectious disease is not controlled through imaginary political boundary lines. No city, however well organized, can hope to prevent the spread of contagious disease by purely local work. Neither can the rural district be well protected, on account of the diffuseness of the problem, by supervision from the county seat.

In matters such as water supply, disposal of sewage and other wastes, the city cannot afford to ignore sanitary conditions at its boundaries. Since the food supply of a great city is collected over a vast area, there must be complete coördination of all food inspection carried on throughout the entire

county. Furthermore, with a population of close to a million in Los Angeles County, with the rapid growth of an electric transit system, and also the tremendous use, both in business and for pleasure, of the modern automobile, our administrative unit must cover a great district, embracing fully the possible sources of contact of people or pollution of public utilities. No health department can control effectively the spread of contagious disease except through complete coördination of the personnel of health departments of the territory through which the spread of disease is a logical consequence.

Los Angeles County has about 1,000 square miles of watershed, mainly in the great mountain resort area known as the Angeles Forest Reserve. It also has 30 miles of beach frontage on the ocean, which is a great natural playground. Not only have we the problems peculiar to the hygiene of recreation, but it is becoming more increasingly difficult to protect the purity of our water supply and to decrease the danger of contact infection at the beaches, largely because of modern rapid transportation. It is certainly unjust that the County should have the entire burden of sanitation for this enormous holiday or transient influx of urban population into the resort areas of the rural districts.

The public school situation also bears out the argument for county centralization in public health matters in Los Angeles County. It happens in many instances that children reside in one health jurisdiction and attend school in another. A third factor enters in where the school board maintains a health supervision of its own. Nevertheless, when contagious disease arises, either or both health officers must be consulted. Efficiency under such conditions is almost impossible.

We come finally to the fourth and

last consideration for county supremacy of public health, the economic factor of business efficiency.

#### IV. ECONOMIC FACTORS

These factors have to do with the question of taxation and the problem of efficiency of the health department itself. Modern business efficiency demands economy of administration, combined with the satisfied customer, which is the public. In analyzing the question of taxation today, the citizen at present is taxed,

First, by the U. S. Government.

Second, by the State indirectly.

Third, by the County.

Fourth, by the City, and

Fifth, through special acts, such as the school tax and other forms of district taxation.

In my opinion, any totally new form of health administration requiring the organization of a special district, is doomed to failure by reason of its taxation features. In the present county plan we are following largely the idea of the union school district. School authorities long ago found it necessary to combine various small schools for the purpose of economic administration and to provide better salaries for the teachers.

Our present plan supposes that at some time in the future, all the municipalities in Los Angeles County will, from a practical standpoint, unite in budgeting their needs and will lay out one comprehensive plan for the performance of the health work of arbitrary districts under a local full-time health officer in each section of the county.

The citizen of each municipality is already supporting the county government, and hence the health department through the general fund of the county. The public is already overburdened by taxation. It is a serious matter for us to consider how far we may go in our demands for public health if we

do not reorganize our expenditures by proper budgeting of related departments. Furthermore, we cannot expect the coöperation of the average citizen until we adopt uniform quarantine and sanitary regulations throughout the county. Much of the public dissatisfaction with health matters today rests upon the multiplicity of organization and the variance of the rules of these organizations relating to quarantine and sanitation.

There is another and very important reason why city and county health work must be coördinated, and that is the necessity for the development of the health center idea. Public health work must be made concrete to the people. It must do this through local work of a simple nature, adapted to the community for which the work is organized.

The smaller cities are unable financially to pay for full-time health service. The county is unable to organize effectively a vast rural district without the social center stimulus existing in each small city, which is the focus for the surrounding rural territory. On the basis of this conception, the Los Angeles County Health Office has, briefly, accomplished the following:

Since 1915 it has succeeded in formulating a policy and has committed the Board of Supervisors thereto. Contracts have been made by the County

for the performance of functions relating to public health, with three cities in the county. Several others are contemplating joining in this service soon. The plan embraces the grouping of a certain population in the rural districts surrounding the cities, and the building up of a full-time health service consisting of a health officer, nurses and clerical assistants.

Second, a beginning has been made in the coördination of school work by joint employment in school districts of public health nurses, and the development in such districts of a rudimentary form of health center.

Third, a Central Vital Statistics Bureau has been created by law, embracing the records of the entire county, including the cities.

Fourth, the budget of the County Health Office has grown from about \$7,000 to nearly \$70,000 under this plan of administration.

Finally, in order to secure the needed development of this plan throughout the state, some form of State subsidy must be obtained. The full support, both financial and moral, by the State government is necessary for two reasons: First, in order to coördinate more effectively the activities of the various units, and second, in order to furnish the greatest possible incentive to local health organizations over the entire state.



**An Educational Field for Nurses.**—That the nurse, both public health and in private work can wield great influence in the education of the people is set forth by Harriet N. Leete, R. N., in a recent issue of the *American Journal of Nursing*. Miss Leete notes that pertinent facts should be presented to our people in such a way that every one may realize the situation. One of these is the truth that as a nation we Americans are woefully lax in the care of our children. Who is there that better accomplish the diffusion of the knowledge of this fact than the nurse, whose opportunities are in

almost every household, and whose influence is far-reaching.—(M. B. D.)



**Health of the Summer Camp.**—The ever increasing popularity of the summer camp for young people of either sex and even for young children leads John Foote, M. D., to urge very properly in *Mother and Child*, that every parent who intends placing a son or daughter in a summer camp, owes it to himself or herself to enquire in writing, "What health protection and what health teaching will the camp give my child?"—(M. B. D.)

# VIRGINIA PLAN OF COOPERATIVE COUNTY HEALTH WORK

W. F. DRAPER, *Passed Assistant Surgeon, U. S. P. H. S.*  
*In Charge Coöperative Demonstrations of Rural Sanitation in Virginia*  
*Richmond, Va.*

In the development of public health activities the particular needs of the locality to be served should be of prime consideration. If at the start it is evident that only one line of work is possible, it should be that which will yield the greatest returns in lives saved and sickness prevented for the money available.

IN Virginia, as in other states, there are many rural communities in which public health work, except possibly of the most rudimentary and transitory character, has never been undertaken. In these sections, the incidence of typhoid fever, dysentery, hookworm disease, infantile diarrhoea and intestinal parasites is high, and the annual losses from these sources is so great that their reduction constitutes one of the most urgent duties of the State Board of Health. During the period October 1, 1908, to September 30, 1909, it is estimated that there were 14,000 cases of typhoid fever in Virginia. This has been reduced in successive years to the minimum incidence of 2,900 cases during the year October 1, 1919, to September 30, 1920. The actual number of deaths during that year was 267. A very large reduction has taken place in the cities where health departments have been strengthened and public sewerage and water supplies have been developed. The incidence in the smaller towns and rural districts has decreased in less proportion.

In order that the health problem may be clearly understood, it should be noted that the cities in Virginia, although geographically within the counties, are politically distinct and separate so that the county governments receive no income from the cities and are dependent upon their own sources of revenue which, under the present system of taxation, are very limited. The county treasury is al-

most invariably drawn upon to the full extent of its credit during the year, if indeed, as is only too frequently the case, it is not deeply in debt.

Under these conditions, and with a rural population not over anxious to change its ways, the problem lay in finding some means whereby practical assistance in establishing and carrying out the fundamental principles of public health work might be made possible for any county in the State. Through a coöperative arrangement with the Public Health Service, the State Board of Health and the State Council of Defense, the following plan was put into effect as a demonstration:

To a limited number of counties appropriating \$1,000 for coöperative health work, the State and Public Health Service allotted \$500 each, making available a total budget of \$2,000 for a county. From this amount, a man, previously trained in the fundamental principles of rural sanitary work and known as a county sanitary officer, was employed in the county for a year at a salary of \$1,200. The remaining \$800 was used for providing automobile transportation and defraying incidental expenses.

A commissioned medical officer of the Public Health Service was detailed to coöperate with the State Board of Health by taking charge of the general administration of the work, and two officers of the Service were assigned to groups of five counties each for purposes of super-

vision. Their duties were to plan and supervise the work of the sanitary officers, to secure the passage of local ordinances and regulations, to conduct educational work through public addresses and illustrated lectures, and to arrange and carry out coöperative health measures with county boards of supervisors, county boards of health and other organizations and agencies concerned with the improvement of the public health.

The demonstrations were conducted in accordance with the following program:

1. Make a sanitary survey of the towns in the county; recommend such sanitary ordinances as may be necessary for placing these towns in a sanitary condition; secure passage of same by town councils; and give all possible assistance in having such ordinances put into effect and carried through to a conclusion.

The above relates principally to the passage of a sanitary privy ordinance and the installation and operation of a system for the sanitary disposal of human excreta in towns.

2. Introduce measures for the provision of sanitary closets and a safe water supply at every schoolhouse in the county. Secure funds for same, supervise the work of construction and see that it is carried to a successful conclusion.

3. Secure the installation of sanitary closets and safe water supplies at individual homes through the county as far as possible. (The country homes sanitized in our counties range from 500 to 1600). This work is accomplished by education, persuasion and voluntary coöperation on the part of the people.

4. The creation of popular interest and sentiment for public health work to the end that the county will desire a more complete health organization the following year or, at least, continue on the same scale.

5. Coöperate with the county board of health, and, when so requested, act as its agent in carrying out measures

for the control of communicable diseases.

6. Give educational talks in the schools on school hygiene and public health, and organize school health leagues whereby each school may have a health organization composed of the pupils themselves who serve as health officers and assist the county sanitary officer in maintaining the school and its surroundings in a clean and healthful condition.

#### PRACTICAL DETAILS OF THE WORK

While rural public health work naturally includes all measures for the prevention of disease and the promotion of health, it is logical to attend first to those conditions which are responsible for the greatest incidence of disease and can be most easily remedied. In Virginia, therefore, the principal efforts have been first directed toward the safe disposal of human wastes and the protection of water supplies.

There are a number of methods by which this may be accomplished, and it has been a definite policy to secure the installation of the best type of closet possible under a given set of conditions. There are communities, for example, which can well afford to install public water supplies and sewerage systems. They are urged to accept nothing less. Other towns may be provided with water and sewerage, but permit a number of surface closets to exist on premises which might be connected with the sewer. Under these circumstances, nothing less than flush toilets and sewer connections are acceptable. In one town of this character, the employment of a good deal of strategy was necessary to prevent persons who were able to connect with the sewer from installing sanitary privies of the box and can type, which were being introduced into the unsewered outskirts of the town:

The detailed character of the work performed is apparent from the monthly report form, shown on following page.\*

\*Other forms used for other details of administration, including the financial statement, may be secured by addressing the author.

METHODS EMPLOYED

I am inclined to believe that one of the greatest uncertainties existing in the minds of those associated with county health work is in regard to the relative

merits of educational measures and the securing of voluntary coöperation on the one hand, as contrasted with the enactment of comprehensive health laws and efficient execution of them on the other.

ENNION G. WILLIAMS, M. D.,  
STATE HEALTH COMMISSIONER

W. F. DRAPER, M. D.,  
PASSED ASSISTANT SURGEON U. S. PUBLIC  
HEALTH SERVICE  
IN CHARGE RURAL SANITATION

County

CO-OPERATIVE DEMONSTRATIONS OF RURAL SANITATION

U. S. P. H. S., SUPERVISING HEALTH OFFICER

COUNTY SANITARY OFFICER

MONTHLY REPORT NUMBER PERIOD

YEAR OF WORK PRESENT YEAR BEGAN

	During Month	Total to Date
Homes surveyed .....		
Homes resurveyed .....		
Sanitary privies installed:		
L. R. S. type (septic privy) .....		
Concrete vault type .....		
Box and can type .....		
Pit type .....		
Chemical type .....		
No. above installed where no privy existed before .....		
Water sewers:		
Septic tanks installed .....		
Sewer connections secured .....		
Wells new .....		
Wells improved .....		
Springs improved .....		
Water connections, city or central supply .....		
Water samples analyzed .....		
Nuisances abated .....		
School Sanitation:		
Total number schools in county .....		
School houses inspected .....		
Number schools provided with sanitary toilets .....		
Number schools without sanitary toilets .....		
Schools provided with improved water supplies .....		
Sanitation of Food Establishments:		
Number restaurants, soda fountains, etc., inspected .....		
Number of improvements secured .....		
Educational:		
Public talks by supervising officer .....		
Public talks by county sanitary officer .....		
Number in audiences (approximately) .....		
Bulletins distributed .....		
Health signs posted .....		
Business letters written .....		
Newspaper articles .....		
Miscellaneous:		
Special meetings and conferences .....		
Additional funds secured .....		
Purpose to which funds were applied .....		
Homes, stores, dairies screened .....		

News: (Brief statement of any other work accomplished and description of matters of local or general interest may be continued on extra sheets).

Both ways have been tried, and the demonstrations have been interesting and replete with valuable information.

In one county in which a special demonstration of county health work was conducted on a somewhat larger scale than that described above, the health officer first secured the passage of rigid local sanitary laws and then proceeded to enforce them. No protest availed; no excuse was accepted. A summons to court and a swift fine were the inexorable fate of all who refused or neglected to comply with the law. Mass meetings of indignant citizens were held to protest against the methods of the health department. Invariably the health officer was present to enjoy the occasion and invariably were the rebellious factions exposed in their ignorance of the fundamental principles of health and sanitation and forced to take their seats, followed by the ridicule of those who likewise came to complain, but found the tide too strong to stem and rapidly took their place on the side of the health officer. Such meetings usually wound up their sessions by passing resolutions endorsing the work of the health department.

Time passed. Deplorably filthy conditions which had been sore spots in the county for years were replaced by modern sanitary equipment. The entire community improved in appearance and was more comfortable than it had ever been before. The children talked at home about the interesting things which the health officer and the nurse had told them, and sought the aid of their parents in working out the health problems given them at school. Every now and then they returned with prizes for excellence in an essay on some health subject, or for winning in a competition for the greatest improvement in personal health.

Clinics were established at the health department where physical defects were corrected, teeth repaired and lungs examined. Conscience-stricken mothers whose husbands had at some time made uncomplimentary remarks about the

health department made voluntary donations to the clinics in order that the work might be extended. In short, a county which, prior to the demonstration, maintained one untrained inspector at a salary of \$1,500 per year, appropriated for the year following the demonstration upwards of \$13,000 for the maintenance of its own health department entirely independent of outside assistance.

In one of the counties where the plan called for the employment of a county sanitary officer only, it was decided to enter into an intensive publicity campaign with a definite organization for carrying out the movement. The campaign was to reach its climax during a certain week in April to be known as "Sanitation Week," and during this week an effort was to be made to have every home in the county provided with a sanitary closet.

The organization, which consisted of interested and public spirited citizens in every district of the county, and the publicity, which was exhaustively conducted through every possible channel, were accompanied by a wealth of detail.\* Suffice it to say that the notices sent from the office of the sanitary officer were, in the final analysis, very definite instructions to comply with the law and, although not stating in so many words the penalty for non-compliance, it was implied that dire consequences would follow.

The outcome of the campaign was striking. A total of 2,094 sanitary closets of various types was constructed in the county during or immediately following "Sanitation Week," and this, as far as I know, is the largest result ever accomplished by one man in one county in a year.

As striking and convincing as the demonstration in these counties may be, they cannot be accepted as conclusive, or even reasonable evidence that the methods employed are models to be followed in county health work in general through-

\*See *Public Health Reports*, Oct. 1, 1920.

out the state. They are applicable only to certain sets of conditions in the hands of certain men. That which these particular men in these counties have accomplished, many others could also do, but, to be equally successful, each would have to proceed in his own way.

I doubt very much if in any line of work it is of more importance that a man should feel free to do things in the manner most natural for him than in rural health work. The supervising officer may lay out the plans, define the general policies to be followed, and insure that satisfactory progress is made, but the worker must be given a free hand to carry out the details in accordance with his own individuality. He is absolutely powerless to render his most efficient service and realize his fullest possibilities if compelled to assume the personality of another. If he is unworthy of this degree of responsibility, he is unfitted for the job.

In contrast with the work in which the invocation of the law has been the primary and, perhaps, the chief reliance, there are other demonstrations in which the slower methods of education and the securing of the voluntary coöperation of the people have been the principal stock in trade.

Thousands of surveys of individual homes have been made and, in every instance, the occupant has received information as to the reasons why certain diseases have occurred among the members of his own or his neighbor's family. He has been shown insanitary conditions on his premises and given instructions and assistance in correcting them. In many of the demonstration counties may be seen 500 homes or more with sanitary means of excreta disposal, the result of the educational effort of one man in a county. The great majority of these homes were sanitated for no other reason than that the occupant understood why it was to his advantage to make the changes and voluntarily did the work.

In a certain Virginia county in the early part of 1919, the citizens of one district stopped their work and travelled several miles to tell their supervisors that in their opinion rural sanitation and everything connected with it was ridiculous nonsense and that the real object of the proposition was to furnish a job so that somebody might travel up and down the county while they paid for it by the sweat of their brows. Owing to several months of persistent effort by friends of the measure, the appropriation was finally passed and the work inaugurated. At the end of the first year about 2,000 families had been visited by the sanitary officer and informed in regard to health matters. Four hundred home owners had voluntarily made the fundamental sanitary improvements. These are only figures, the interesting part of the story lies in the fact that, at the end of the year, when a second appropriation came up for consideration, there were 25 people at the meeting to urge its passage and not one to speak against it. The motion to pass the appropriation with an increase of 50% over the appropriation of the previous year was made by the supervisor representing the people who so bitterly opposed it the year before.

This, to me, is an example of educational work of the highest type. The essential fact is that the people of that county came to understand the real purpose of the work and the benefits to be derived from it. A firm foundation has been laid, and, at the present time, there is work being accomplished which no one thought possible, least of all the local people themselves.

As a general rule, I believe that it is safe to assume that it will be difficult, if not impossible, to secure local coöperation and appropriations unless the majority of the people understand the reasons for the work and really want it done. As educational measures progress and the number of supporters increases, the law may be enforced for the control



of a recalcitrant few who are normally present in every community.

By the development of local sentiment for public health work, the legislators of the state may be induced to make more nearly adequate appropriations to the end that health education and the enforcement of health laws may be uniformly carried on throughout the state.

RESULTS OF THE VIRGINIA PLAN

While there are many phases of health work which can be tabulated only with the greatest difficulty, if at all, it is perhaps reasonable to assume that the actual construction work accomplished and the success of the plan in perpetuating itself form a basis upon which its general effectiveness can be rated.

The number of sanitary closets of various types installed in ten demonstration counties in Virginia during the first year of work under the plan of the county sanitary officer is as follows:

Septic privies and tanks.....	300
Chemical type .....	124
Concrete vault type .....	144
Box and can type.....	2,918
Pit type .....	1,991
Total .....	5,477

Of the ten counties which appropriated each \$1,000 for coöperative health work during the first year, two made appropriations each of \$5,000 for the

second year. The work in these counties will be conducted by a complete health organization, operating on a \$10,000 budget made possible by state and international health board coöperation.

Of the remaining counties, six provided for the continuance of the work a second year and each increased its appropriation by 50% in order that salaries of the sanitary officers might be increased. These counties are now working on a \$2,500 budget, \$1,500 being contributed by the counties and \$1,000 by the state. In addition to the above appropriations, the counties have set aside more than \$10,000 for the sanitation of their schools, and, in this sum I am not including appropriations amounting to \$7,000 which were made, but which are not available because the unusual conditions of the money market have made borrowing difficult. It will be noted that two counties have apparently not continued their appropriations. One of these has, through its various civic agencies and private organizations, contracted to make available a sufficient amount to support a complete health organization, provided the Board of Supervisors will do its share. The other, although heartily commending the work and testifying to its appreciation of the excellent efforts of the sanitary officer, had just bonded itself to install a sewer system and really was unable to raise the additional money.



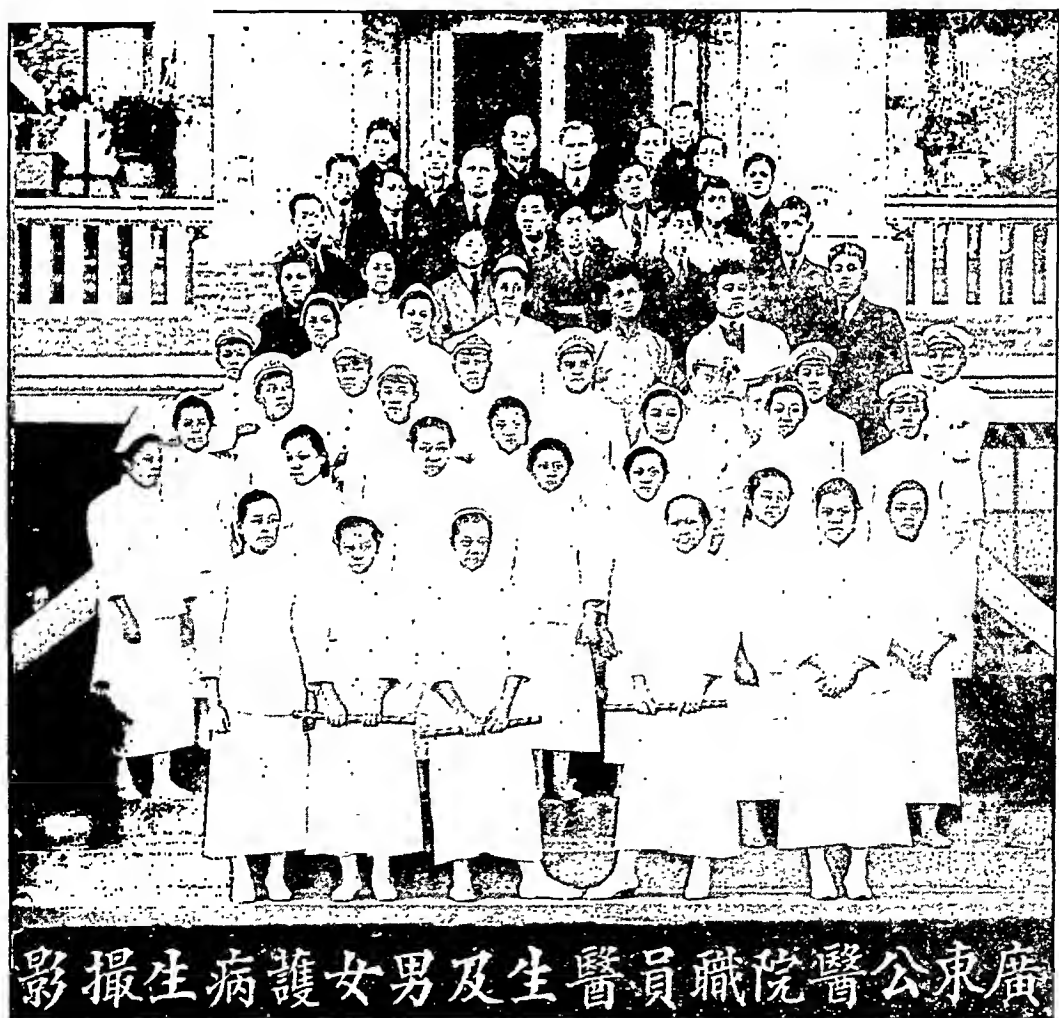
**The Program for the Fiftieth Annual Meeting of the A. P. H. A. plans for the sectional papers, papers before other associations, a Health Institute and a Health Exposition. Four reasons why you should attend! New York City, November 8-18, 1921.**

## CANTON'S NEW KUNG YEE HOSPITAL

**A** MERICANS in general have but an imperfect idea of the progress of medicine in the Orient. The conservatism of China through countless centuries is considered even by intelligent people to include even till today all phases of existence, but it is nevertheless true that the recent awakenings have been extraordinary. Being aside from the business world the knowledge of what has been done there in sanitation and public health is fragmentary. The

Chinese medical periodicals tell of technical medical work and research, while some popular phases have been presented in past issues of the A. J. P. H., which have presented the remarkable accomplishments of Dr. Peter, who adapted 20th century American inventiveness to the psychology of the Chinese people.

Quite recently there has passed through this country Dr. Shu Fan Lee, who is the first Chinese health officer of a Chinese district. He came here in the



影撮生病護女男及生醫員職院醫公東廣

*Kung Yee hospital staff. Medical staff in dark, nursing staff in white. Americans will be surprised to see so strong and bright a corps of native medical workers in a Chinese Hospital*

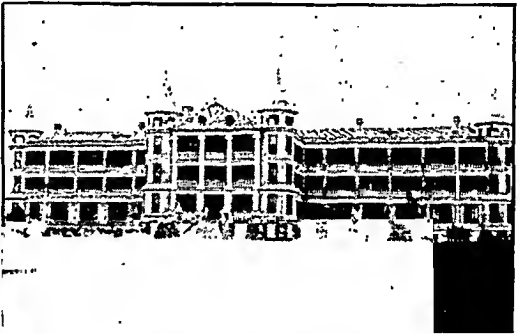
interests of funds for the Kwong Tung Kung Yee Medical College and Hospital, and he has given the JOURNAL an opportunity to get at first hand some of the details of a very modern medical work in the celestial kingdom. Dr. Lee, it should be said, sought endowment for the institute he represented among the Chinese societies of the country. He did not appeal to the American purse and his visit here became known through the publicity that his movements occasioned.

The picture of the Kwong Tung Kung Yee Hospital building in Canton gives at once an idea of the dignity of the establishment which in December, 1908, was organized when a dozen prominent Chinese met with Dr. P. J. Todd. Dr. Todd is a graduate of Kansas Medical

opened in a rented building in 1909 and was settled in a location fairly near the center of the city. The avowed object of the Committee, a group of citizens serving without compensation, was to establish a medical school where the best modern methods of healing might be taught, to establish a school of modern dentistry and a school of pharmacy, the combined schools to be an influence towards the bettering of the sanitary conditions of South China. In order to do a successful work and at the same time a practical work, coöperation has been sought at all times with the missionary physicians. Coöperation between the Chinese Committee and foreign and Chinese physicians was established as a foundation stone in the school, with its



*Kung Yee Medical School*



*Kung Yee Hospital, Main building*

College and met with this group of Chinese in the Bethesda Hospital already established in Canton. The prime purpose was to formulate plans for a medical college. It happened that in that same year the medical college connected with the Canton Hospital had been closed. The members of the Presbyterian Mission were anxious to found another college but the home board found itself unable to undertake such a project. The immediate outcome of the meeting with Dr. Todd was an agreement to find 50 men to contribute \$100 each and to become members of an Organizing Committee, which within the next year gathered an additional sum of \$22,000.

The Kung Yee Medical College was

instruction to be given in the Chinese language and with perfect freedom of religious belief. Its code of regulations was formulated by the co-work of native and Western physicians.

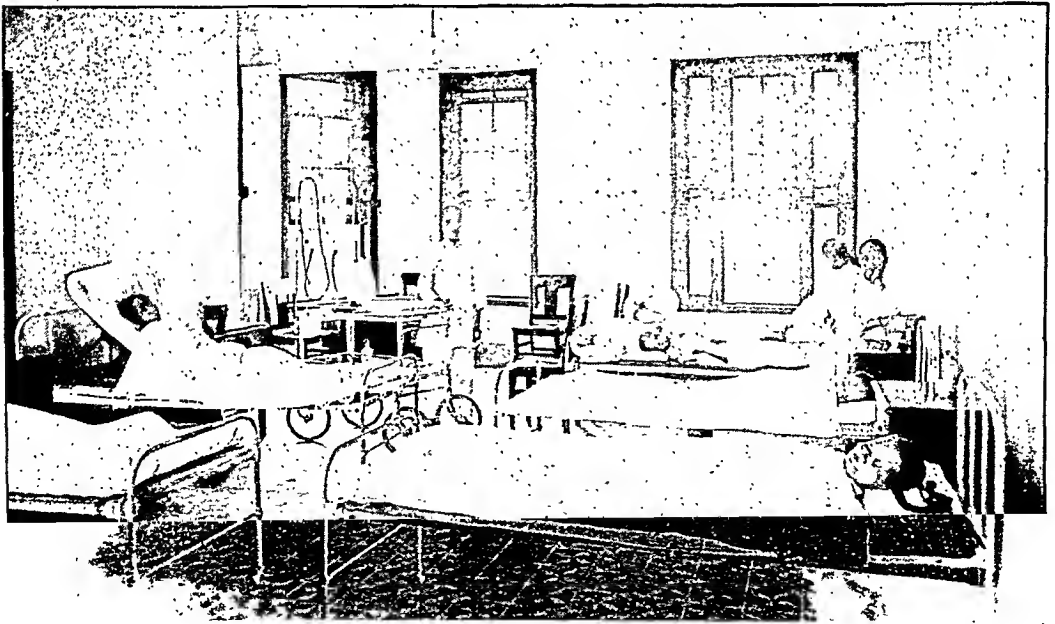
For two years and a half clinical instruction was given in the Bethesda Hospital and its dispensary. In 1912 the committee took over the Chang Yuk Women's Medical College which was then named the Kung Yee Women's Medical School. Men and women were taught separately but mostly by the same faculty. After about six years of the instruction of women in medicine it seemed desirable to give up this school and in its place was established the Kwong Tung Training School for

Nurses. Almost as soon as the rented building was occupied the plans for a larger hospital were formulated, in 1909 a site on the river front in the city of Canton was purchased and in 1911 a hospital building with 60 beds was erected with accommodations for administration and staff and a chapel. Here was located for a number of years the Hospital Dispensary.

Late in 1912 the Government became interested and gave to the hospital a lot of 20 acres just outside the east gate of the city. Within the limits of this estate lie three hills on two of which have been erected the Hospital and School. In 1913 the Hospital purchased a number of small lots of land adjoining the larger one, perhaps two or three acres in extent. In February, 1914, the ground was broken for the erection of about one-third of the proposed plant. The school had been successful, so successful in fact that it was able to raise its standard and at this time only about half the applicants were accepted. Coöperative work had been well established and the students of the third and fourth year had access to the surgical clinics in the Can-

ton Hospital and to medical and surgical clinics in the Yan Tsai Hospital together with the Kung Yee itself. The latter was at this time full to overflowing with a total of 1,443 patients in the year. The Yan Tsai is a large native hospital and it gave over half its plant to be used by the Kung Yee staff. The house physician is a Kung Yee graduate with another as superintendent of nurses. The section of the hospital under the care of the Kung Yee staff had 123 patients and 2,865 dispensary calls. Thus far the receipts of the college had been about \$20,000 a year with a cash balance in 1915 of \$600. The receipts of the Hospital had averaged about \$40,000, with a cash balance in 1915 of \$10,500. Americans who have had experience in establishing institutions may well realize this fact, that in five or six years the college and school were able to secure from Chinese sources among Chinese people as important a maintenance fund as this. The number of patients had gone up to 1,450 in 1918 and the dispensary and city calls to nearly 9,000.

In 1916 and 1917 the new college and the Hospital, costing \$180,000 approxi-



*A ward in the Kung Yee Hospital which tells its own story*

mately, were erected, about one-third of the completed plannings. These buildings, occupying each one the top of one of the hills, are constructed to be the centers of important future additions. The Hospital, for example, has made its plans for five additional wings together with service and other buildings, while the Medical School is so situated as to provide for extensions in its building and for a convenient arrangement of dormitories about it. In the hollow between the two buildings lie the tennis courts and an athletic field of considerable area has been located far away from the street and entrance. The disposition of these structures crowning separate hills is picturesque and is assurance that no matter what may be the future growth of Canton in this direction, these buildings will never be overlooked or over-shadowed. The final plan will provide for 400 patients and 200 students.

Four buildings have already been erected. The Medical College has six well lighted laboratories, two lecture rooms and an assembly hall for 500 with administration, library and utility rooms. There is an anatomy building with laboratory for 80 students. The first section of the hospital building includes the general entrance, which will be an administration section with two wings, the administration building being continued to the rear with an extension to the West. As will be seen, the buildings are modern in style with spacious piazzas which may be open or glass enclosed at will, while the inner wing carries out the same feature with the balconies continued at right angles across the ends.

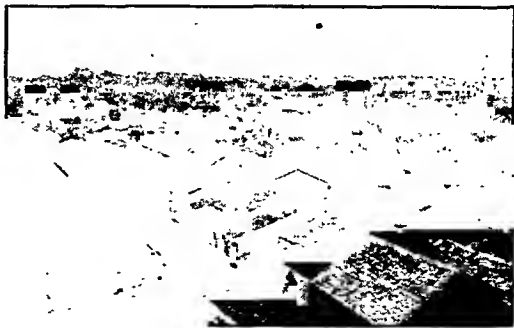
This first section of the Hospital contains 98 rooms, 34 for private room patients, and general wards accommodating 86 in 4, 8 or 12 bed units. There are here two operating rooms and all of the accessories. Nearby at the gateway is the Dispensary with six rooms for clinics, waiting rooms, library and administration.

It is interesting to notice that in the

construction of the buildings the floors and stairways are of reënforced concrete, the general structures being themselves of brick. For the anatomy building bamboo strips cross-laid constitute the reënforcement, a decided novelty to the American engineer, while in the other buildings steel and steel with bamboo are used. As to interior finish, the pictures give ample evidence of the modern equipment of these buildings with tiled floors and flush walls of white enamel.

With the opening of the new building, the hospital in the city was emptied. It was fitted up for dispensary and outpatient work, and will now serve for an emergency hospital as well as a health center with ambulance service connecting it with the new hospital. The new buildings were opened in 1918. The grounds have been given into the charge of an English woman, a trained horticulturist. The courses in the Medical School have been changed to a four and a five-year one. In 1918 it seemed best to discontinue the Women's Medical College, and in May, 1918, a training school for nurses was established which has furnished the women now in charge of the operating rooms and the director of the nursing staff of the Hospital.

An interesting outcome of the establishment of the Hospital outside the city



*The roofs of the city of Canton. This will give to the Western world an idea of the congestion of population and to health officers it will suggest something of the sanitary problems to be met. Other public service agencies will be interested in the fact that the three high buildings are pawn shops.*

limits in its effect on the psychology of the Chinese is that the patients are willing to go out of the city to a hospital which is quiet and clean, while it was difficult to persuade them to leave their homes for hospital treatment within the city walls. The number of patients treated in 1917 was 1,401; in 1918, 1,794, and in 1919, 2,434, with 30,000 days of residence. There were nearly 8,000 dispensary treatments, including about 300 calls or visits to home.

The illustrations furnished through the courtesy of Dr. Todd speak more than can words with reference to the quality and magnitude of this undertaking. The "Roofs of Canton" are of a great deal of interest to the health officer. Here the primeval thatch touches elbows with the corrugated iron, and all varieties of intermediate structure may here be observed. It gives a vivid suggestion of the congestion of population and to health officers it tells something of the problems that are to be met. The pictures of the interior of the hospital merit attention and the operating room with every individual in it a Chinese is deficient neither in quality nor personnel nor equipment, nor the attention of the student. No one could distinguish it from a similar room in this country. Here again is a ward in the Kung Yee Hospital which tells its own story, while, if one will examine in detail the faces of the hospital staff on the hospital steps, he

will be astonished to see so bright a corps of medical workers, a miracle wrought by a mere handful of Caucasian leaders.

And this modern Kung Yee Hospital stands in a land where on the street the rickshaw and the coolie porter hold sway and where the people have not changed their costumes or their customs these ten thousand years.



*Operating amphitheatre with every individual in it Chinese. It offers means of comparison with similar rooms here.*



**The August-September NEWS LETTER, out September 5, will carry information about your railroad rates for the Fiftieth Annual Meeting of the Association in New York, November 8-18, 1921. You must have it to secure the special rate.**

# RELATIONS OF SOCIETY TO THE DRUG HABIT

PETER H. BRYCE, M.A., M.D.,

*Ottawa, Canada*

NO social problem has within recent years come into prominence with the same startling acuteness as that of drug addiction and the duty of the state towards it. The practices of peoples and individuals in the use of various intoxicating substances have an historical interest, reaching back to pre-Christian times, while the effects of drunkenness on the decline and fall of empires seems to have been always the occasion for homilies, when national prosperity has been associated with sudden accessions of wealth and social effeminacy. Belshazzar's feast, the orgies of Nero and the excesses of even the courts of the Caliphs, successors of the Nazarite Mohammed, whose precepts taught abstinence as a rule of life for the faithful, are but illustrations of what has marked the aberrations, whether of kings or nations, who have departed from the simple teachings of the sages of every age.

The growing complexity of modern society has, however, by what Professor T. H. Greene speaks of as "A series of sanctions," had to evolve rules of life, which we call laws, by which the liberty or freedom of the individual is limited in certain matters for the sake, as Greene puts it, of greater good to the individual as a member of the community. Such sanctions are the basis upon which all sumptuary laws, whether affecting health, morals or taxation, depend and their permanence will depend upon the judgment of popular opinion as to their utility.

Unfortunately, laws have not infrequently been passed during periods of national excitement or danger, which can scarcely be said to be based upon popular sanction, as where monarchy was restored after the excesses of the French Revolution, due to the fiction of the divine right of kings, and when in Spain the Inquisi-

tion was re-established, "To make the world safe from democracy." We have recently had illustrations of this kind of legislation as when the Russian Czar signed an ukase abolishing vodka-drinking, with the intent to make sober a people whose personal liberty was still a visionary thing. In the United States and Canada the legislatures of almost every state and province have passed prohibitory legislation to abolish the use of alcohol as a beverage and, contrary to the Russians in revolution, the people have again and again supported the legislation at the polls, basing their action on scientific or social grounds or on the religious beliefs of the individual voters.

The restrictions which have been conceded in the matter of alcohol have brought into prominence the dangers, which may arise to society from the use of opium, cocaine and other sedative drugs, which find a useful place in medicine. A century of history in America, during which few of these drugs were known, has taught that the relatively simple lives of the people were free from any intoxicant other than alcohol, whose disappearance as a beverage now has general sanction. This is the best evidence of a healthy national morale; while the prominence being given to drug addiction serves to bring into relief what may be best looked upon as a quickening of the public conscience in the matter of other degenerative influences affecting the national welfare.

Unfortunately, the mere votes of the people cannot determine biological questions such as underlie the neuroses of the higher class drug addicts in many cases, nor do they solve the problems, primarily moral and educational, of those on a lower plane.

A Western woman judge in her annual report of the Juvenile courts, sum-

marizes the situation based upon her experience: "I feel sure I am not exaggerating when I make the statement that in not one-third of the cases coming before me should the blame be attached to the delinquents themselves. Lack of parental control, misspent Sundays, late nights, community neglect, bad example of adults, old family grudges, cruelty of parents, poverty, immorality on the part of parents, drunken fathers and mothers, orphanage, bad environment, heredity, etc., bring most of the children to court."

It is with this phase of the situation that the subject of drug addition becomes distinctly a question of public health interest and importance. From the standpoint of the public health official the problem is presented as one for action, and envisaged as it is with biological, legal and social factors, he who would act wisely will act warily. *Festinate lente* is a maxim never in greater need of observance. It is, therefore, essential if we are to pass national or state laws and make health and police regulations dealing with drug addiction, that the matter be dealt with in all its bearings. Some would start with phylogenesis, and follow the persistence in races, as the Jewish, Latin, Nordic, or Mongol, of certain supposed tendencies based upon nervous organization, and by which some have explained hereditary alcoholism; but it is too complex a problem to separate tendencies from environment, such as occupation, residence, education and habits of life, valuable as each is as a factor, for the medical officer to obtain much assistance therefrom.

He knows from experience that the negro of the slums or other person of poor mentality must be largely the creature of his environment, with mental suggestion the more potent from lack of education, malnutrition, absence of regular occupation, and school discipline. Victor Hugo's Little Gavroche, the street gamin, with the activities of a young animal, is going to imitate all he sees,

taste every possible experience and graduate into some class, whether a future gunman or a down-and-out, the salvage of some holy agency such as the Salvation Army.

The addict of the higher type, often with a neurotic urban ancestry, is too frequently the over-worked, ill-paid clerk or the ambitious student, both wholly untaught as to the degree of resistance of a nervous system, or it is the pampered young woman of fashion, wholly irresponsible and the creature of impulse, because from a child she has been allowed to gratify every desire, who, exhausted through dissipations, social and sexual, seeks a *placebo* in some drug, and finding relief, logically becomes the victim of drug addiction. Probably no one will think the picture overdrawn or will find any difficulty in comprehending the remedy necessary in each class of case.

Not infrequently, too, as a result of medical treatment in which narcotic drugs were administered by a physician, individuals have become addicts, whose physical system seems to demand a regular supply of the drug. Such an one is not a "down-and-out"; he is not the irresponsible creature of impulse, but a man, unfortunate, and according to some authorities, sick and in need of medical treatment. He keeps on doing his duty in his profession, be it judicial, ministerial or financial, and presents a problem as difficult as it is painful.

But obviously we must not only seek to immunize against disease, but also must deal with existing cases. As to their number in any community, no person knows much. Attempted statistics from doctors, druggists, nurses and courts, give three to five per 1,000 of population, and as there are this number of insane in some communities, according to census returns, the number is probably not too high. Such must further be first known officially; but this will clearly be of little use unless some quite definite scheme for dealing with



them exists. How little progress would even then be made, may be judged from that made in dealing with venereal diseases, where the cases, causes and methods are all well understood.

The publicity method, used in New Orleans, seems to have been a successful means of discovering certain classes of addicts and of carrying them along, if not curing them. It lacks, however, scientific accuracy, fails in the personal touch of the social worker, and altogether lacks the intimate relations existing between physician and patient.

Naturally such activities lead up to the question of municipal provision for those who become incapacitated for work and who transgress social laws and police regulations or become dangerous to the public. Such may be dealt with under laws like the Inebriates' Act of Great Britain with good results, like those set forth in the report of Dr. Hogg, Superintendent of Dalrymple House to the Homes for Inebriates Association. Dr. Hogg has had long and successful experience and considers admission under the Inebriates' Act the best course for both patients and friends in most cases. Although private patients can end their stay at any time, those under the Act remain for the time for which they have been committed, unless previously discharged. Dr. Hogg says his object is to wean a man from his drug with as little discomfort as possible and it is stopped usually one or two days after admission. "Thereafter the object is to train the patient's mind to resist the morbid impulse by cultivating his self-control, strengthening his will power, and making him realize that part of his cure lies in his own hands." Dr. Hogg states that a considerable amount of freedom can be given some patients after a few days residence and parole after three or four weeks.

These extracts are of extreme importance since they at once raise the question of how is this self-control to be cultivated

in a man with a hereditary neurosis, or one a creature rather of impulse than educated in self-discipline. The writer recalls two patients, one a clever lawyer, another an eminent physician. Neither of these succeeded after more than ten years in becoming free, the one ending with self gas-asphyxiation and the other dying with chronic phthisis. Doubtless every physician of long experience will recall similar cases, and the problem becomes the more difficult when *habitués* are active citizens engaged in some useful work and, excepting through injury to themselves and anxiety to their families, seldom transgress the limits of social propriety.

To the psychologist such cases become of intense interest, though they are familiar to all psychopathologists. To comprehend the situation in any degree it is necessary to know "that every psychical activity rests upon the interchange of the material derived from sensation and from the memory upon associations, and that whereas, sensations vary but little from individual to individual yet variations in emotions are so great that we cannot agree upon what is normal and that which we call 'will' as the resultant of the centrifugal tendencies which 'lie within the elemental and complex psychical structures."

Advisedly then the dominant presentation at any moment in the mind of the drug addict will be that excited by, for instance, some external object such as a wine shop to the dipsomaniac, which calls up the associations of the last debauch, or by, as in the case of sexual stimuli or other organic activity, arousing subconscious ideas which automatically rise into consciousness and become 'will' determinants. Obviously, such are associated with disorders of circulation and secretion, where tissues are abnormal as in fever, or weakened reflexes through some disease, or through the use of drugs. Hence it would seem that the problem of dealing with drug addicts suc-

successfully involves the most careful examination of the bio-chemistry of the blood and secretions to discover, if possible, pathological conditions which disturb the operations of a once normal *psyche*, while at the same time securing such temporary control of the patient as will enable the physician to prevent the effects of what must be looked upon as a temporary aberration.

Manifestly, this is easily possible when the patient is in a hospital or in the home; in charge of a skilled physician or nurse; while it is equally plain that no mere routine of institutional repressive treatment will be adequate to overcome the effects of what is the result of years of secret addiction and it may be tissue changes. In this particular the situation is in no sense different from that where other psycho-neuroses are present, and the problem of how far any health department is at present equipped either with institutional facilities or trained psychiatrists involves the question of how far it is wise to load public health services

Obviously, however, since the general practitioner is seldom equipped with psycho-pathological experience or has hospital facilities adequate for pursuing such cases to a conclusion, and as few cities have a psychiatric institution where such cases can receive proper attention, the health department may be forced to take charge of such cases as are dealt with in the public courts. But no progress in the rational care of these cases can be expected until a much broader and more intelligent view is taken of what has produced the drug addict, of what his pernicious influence on society, if left at large, may be, and still more of the delicate problems of the rights and freedom of the individual, who is not bad but is weak and diseased. Nothing less than psychiatric hospitals and provision for conditional control of patients is likely to deal adequately in any degree with this the most distressing illustration of the difficult biological and moral problem of the *liver ad astra* of humanity.



**Index of Health Papers.** In connection with the assembling of national health organizations at 370 Seventh Avenue, New York City, the Common Service Committee has been organized. Its purpose is to undertake certain matters of all of the associations, including bookkeeping and mechanical work like the sending away of parcels and circulars. Its last service is that of a Weekly Library Index, the first of which appeared on the 24th of June. This presents the titles and the periodical of publication of papers on General Public Health, Child Welfare, Health Insurance, Industrial Hygiene, Mental Hygiene, Nursing, Nutrition, Social Welfare, Tuberculosis and Venereal Disease, and other subjects

will undoubtedly be added when called for. The associations will find here listed the important papers in official magazines throughout the country. Five organizations are at present members of the Common Service Committee, the American Social Hygiene Association, the National Committee for Mental Hygiene, the National Health Council, the National Organization for Public Health Nursing, and the National Tuberculosis Association. The Canadian Red Cross has for some time been issuing for the benefit of national associations across the line, a mimeographed bulletin containing a somewhat similar bibliography.

# HAND DISINFECTION—AN INVESTIGATION OF VARIOUS PREPARATIONS FOR THIS PURPOSE

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THE therapeutic measure of controlling at least one method of transmitting contagious diseases, i. e., through the medium of direct carriers, who are represented by physicians and nurses in charge of such cases, consists of several important problems in public health measures. Among these prophylactic methods, that which has to do with the removal of the infectious virus from the carriers' hands is by no means the least. In an endeavor to solve this problem of hand disinfection and to be able to recommend a substance which will act thoroughly and possess all, or most all of the properties that such a disinfectant should have, the Pennsylvania Department of Health has conducted many experiments extending over the course of a year.

Before any experimental work was attempted, it was decided that the essential properties required of a hand disinfectant should be determined, and that tests to prove the efficacy of the preparation should be adopted. It was considered necessary, in order for a substance to have a value as a germicide for this use, that it must possess all of the following properties:

The product should be readily available; and either be on the market at present or placed on the market with little or no effort; be accessible in rural districts as well as in towns and cities; be already known by the medical profession and laity; and to have had some former use, whereby the public would be acquainted with its use and relative safety or dangers dependent thereon. The product should be very inexpensive, so that the cost would not make its use prohibitive. It should possess warning

signals, either natural or artificial, to indicate that it is not intended for consumption, and to prevent individuals from mistaking it for medicinal substances intended for internal use. And, in addition, to these danger signals it should be relatively free from toxic action, either from absorption through the skin or in case of accidental consumption. The preparation should be relatively stable in the original packet against time, climatic conditions and other physical agents with which it would come into contact during its passage from manufacturer to consumer. It should exert an almost instantaneous action when applied as a germicide, owing to the practice of attendants hastily washing the hands and the inability of individuals to estimate time, or their unwillingness to hold the hands long in an antiseptic solution. There must be an absolute lack of any production of irritation to the skin from repeated or continuous use of the antiseptic, and, notwithstanding all of the above properties it must not be unpleasant to use, because this property alone would suffice to prohibit the free and proper use of the preparation.

The tests employed to determine the efficacy of a hand disinfectant are based on the principle of simulating the actual conditions encountered in the therapeutic application of the material. This principle we consider to be essential in the development of any laboratory method for testing substances to be applied practically. In the case of sterilizing the hands after contact with contagious diseases the actual conditions to be simulated are numerous and can be divided into two classes: First—those that relate to the patient and carriers;—Second

—those that relate to the disinfectant. Under the former, must be considered the period of contact with the contagious individual, the organisms to replace the virus, and the value of these as test organisms. The latter includes the time and method of action of the material and the personal equation of the individual using it.

We decided that a period of three minutes would equal the average actual contact with the patient, including the handling of the patient and infected materials. We, therefore, adopted this length of time to immerse the hands in a basin containing one liter of a suspension of organisms. From previous experience\* in testing the action of germicides by the use of *Staphylococcus aureus* and Diphtheroids as test organisms to supplant the etiologic organism concerned, we employed these in a dilution of ten billion of each type in a liter of tapwater to infect the test hands. This number of bacteria was adopted after experimentation to determine the quantity necessary to permit sufficient contamination of the hands. The organisms used are readily grown on agar, are more resistant to the action of germicides than many of the more infectious organisms, are comparatively free from the danger of severe infection when applied directly to the skin, and therefore constitute a good choice, especially in diseases the virus of which cannot be cultivated. At present we are attempting to establish the coefficient of resistance of organisms, using *Staph aureus* and Diphtheroids as the standard.

The length of time necessary for contact with the disinfectant must be brief, and, therefore, a period of one minute was selected. A short period is necessary owing to the usual practice of individuals exercising great haste, improper washing and the exhibition of a distaste for

such procedures. The average length of time required by individuals unaware of any experimental conditions, to wash the hands with soap and water and to dry them is 36.8 seconds. The time used by men is greater than that taken by women, for the former the average is 44.4 seconds and for the latter 29.2 seconds.

Therefore, in order to ensure destruction of the infectious organisms within such a short time the germicide must exert an almost instantaneous action. We have endeavored to obtain such a germicide, and have found it in the one which we recommend, since it will sterilize the surface of the hands in 15 seconds. We recommend a full minute, however, to ensure a washing sufficient for all surfaces.

The method which we employed to culture the hands is to infect the hands, then rub a cotton swab on wooden carrier, moistened in 1 cc. of sterile water, over the surface of the hands for the control culture. The bacteria are then rinsed from the swab in 1 cc. of sterile water, one swab being used for each hand, and the washings from both collected in the same tube. The infected hands are immersed directly into the liter of disinfectant for one minute. An orange-wood stick is used to cleanse beneath the nails. After this they are rinsed with sterile water which is poured on by an assistant and permitted to drain off. Again swabs are moistened with sterile water and rubbed over the hands, and sterile orange-wood sticks are used to culture beneath the nails. The washings from these swabs and sticks are collected in 1 cc. of sterile water. A control of the bacteria suspension is made by adding 0.1 cc of the suspension to 1 cc. of sterile water. A culture of the disinfecting solution is made by removing 0.1 cc. to 1 cc. of sterile water. After all cultures have been made, they are then plated in agar, by first pouring the 1 cc. containing the washings, etc. into individual Petri dishes and adding agar. They

\*Standard Requirements and Methods of Testing Venereal Early Treatment Preparations—practiced by the Pennsylvania Department of Health.—Therapeutic Gazette, Dec. 15, 1920.

are incubated in an inverted position for 24 to 48 hours and the number of colonies is then determined. By this means it is comparatively easy to determine the number and nature of the colonies, spore formers being easy of recognition.

During the earlier stages of this work we attempted to first sterilize the hands before immersing them in the bacterial suspension, by means of bichloride of mercury, but abandoned the practice on account of the irritation produced leading to a misjudgment of the substance being tested and because we found it unnecessary since the number of organisms obtained after immersion of unsterilized hands is greater than after mercury sterilization due in all probability to the retention of mercury by the skin.

The method of washing the hands without the use of cloth or brush was selected, because the results were of equal value, and the elimination of other materials lessened the liability of transmission of the virus by inanimate carriers, and on account of the liability of the brush to produce mechanical injury to the skin.

The preparation of final choice and the one which we recommend most nearly to possess all of the above mentioned properties, and to guarantee disinfection of the surfaces of the hands, excluding that part under the nails, is a substance known as Eupad. This preparation has been known for some time, but has never been directly applied for the purpose of hand disinfection after contact with contagious diseases. It may not be amiss to re-state here the properties of this substance, and to mention factors which tend to prevent its usefulness.

Eupad is a dry hard powder, consisting of equal parts by weight of chloride of lime and boric acid ground to powder. It can be kept in paraffined paper envelopes without loss of chlorine content.

The mixture is comparatively inexpensive, possesses a natural danger signal in the characteristic odor. Both ingredients have been in use by the laity, and are easily obtained in any community. There is an absolute lack of any irritation. The boric acid present serves as a buffer against the caustic action of the chloride of lime. It is unnecessary to depend on complete solution to obtain germicidal action which is almost instantaneous. All experimental data will be given in Part II.

Eupad exhibits undesirable effects in but two of its properties. These are, first, the persistence on the hands of a slight odor of chlorine, and second, the toxic action of chlorine if taken internally. The odor can be removed almost entirely by rinsing the hands in either a weak solution of ammonia or vinegar (acetic acid). The toxic action is not as great in degree as that from other common disinfectants, amongst which are bi-chloride of mercury, the cresols, and carbolic acid. This property is guarded against by the container, and the character of the powder, the odor and taste of which would warn any individual of its unusual nature. In fact it seems impossible to obtain at present an efficient antiseptic without toxic action on internal administration in large doses.

The amount of preparation necessary to guarantee disinfection is 3 grams of the mixture added to 1 liter of water. These amounts can be approximated by adding one level teaspoonful of the powder to a quart of water. It is unnecessary to use other than tap water. The solution should not be employed for more than 30 contacts, nor be used after standing from two to three hours in an open vessel.

Owing to the action of chlorine on metals, the solution should not be placed in contact with vessels made from metal, but should be used in porcelain or enamel vessels.

The length of time required for disin-

\*Lorrain Smith, Brennan, Rettie and Campbell, British Med. Jour., July 24, 1915.

fection is but a few seconds, 15 being the shortest period tested and proven of value. We recommend, however, that the time of contact be one minute, this period being of sufficient length to permit thorough cleansing of all infected surfaces.

#### SUBSTANCES INVESTIGATED

The methods of applying disinfectants to the hands can be divided into two classes, first, the one whereby the individual remains in contact with the substance, and second, the one whereby the substance remains in contact with the individual. In considering the second method, it was thought to be valuable from the fact that the substance would be held in contact with the surface of the hands by means of an adhesive agent, thereby guaranteeing sufficient time for the germicide to exert the desired action. For this reason it would overcome the difficulty encountered in the first method, namely, the immersion of the hands for an insufficient period.

We, therefore, made many attempts to find such an adhesive agent free from properties incompatible with the action of the germicide, and lacking the objectionable feature of remaining sticky after application. The following were tested and discarded for one or more reasons.

A skin varnish containing 10 parts of casein, 35 parts of ammonia water, 10 parts of glycerine and 20 parts of water, was prepared but was found to have a persistent stickiness.

Emulsion petrolatum N. F., fl. ext. *grundelia* (drachm one to a pint of water), glycono-gelatinum N. F., lubricating jellies, glyceritum phenolis U. S. P. and glyceritum amyli U. S. P. were tested first, for their value as a varnish, but they were absorbed poorly or not at all, hence could not be used.

Various mixtures of gelatine and water, gelatine with glycerine and honey, oils and emulsifying agents and soaps with some inert base were made up into liquid applications and examined for

their practical use. Some were abandoned on account of their incompatibilities, while others, although compatible with the germicides, had to be eliminated on account of the prohibitive cost of their pharmaceutical manufacture.

Having found that it is impracticable to apply the method of keeping the disinfectant in contact with the individual, we turned our attention to the method of second choice. The means of having the individual in contact with the disinfectant can be accomplished in two ways, first, by the use of a germicidal soap, and, second, by immersion into a germicidal solution.

The former was thought to be more desirable on account of the greater convenience in the use of soap, which should be in itself germicidal and would, therefore, prevent direct transmission of organisms from carrier to carrier, require less space in the wash room and lack the feature of representing internal medicines, can be transported readily, and exert a cleansing action.

A number of soaps were selected so that each type of germicidal soap would be represented and were submitted to a test of their direct action on the organisms upon the hands. Observations were made for germicidal action and irritation produced. With the exception of a liquid soap containing  $HgI_2$  in KI which was prepared in this Laboratory, and a mercuric iodide soap (1-1,000) purchased on the market, which gave variable results, all of these failed to destroy the bacteria within one minute. Irritation was either lacking or only slight in amount from the use of any except the mercuric iodide soaps, and these produced the conditions found after the use of bichloride of mercury, namely, roughening, drying and sometimes even cracking of the skin. Their use was discontinued before any actual dermatitis was set up. Soaps without disinfectants have been considered germicidal to a certain degree, and in fact to be able to entirely sterilize the surface of the skin. This, however, has

not been our experience, as we have found them to merely lower the number of bacteria and attribute this to the cleansing property, and not to the germicidal action of the OH group, or to the solution of lipoids of the bacteria.

Herewith is given in Table I, a condensed protocol of the experiments to demonstrate the action of these soaps. The individual records are omitted on account of a lack of space.

A fact noted in the use of these mercuric soaps obtained on the market is that greater germicidal activity is to be had from a fresh cake, than from one

which has been used several times. These soaps are useful for about 50 washings. The other soaps examined are without value as a germicidal application within a time limit of one minute.

The results of the experiments with skin varnishes and germicidal soaps proved these two methods to be without sufficient value, hence we turned to the last resort, the use of a solution in which the hands are to be immersed. We have grouped substances for this purpose according to the factor which renders it germicidal and have attempted to select one or more of each group which has a

TABLE I

Substance—	Organisms 20 bill. in 1000 cc. Staph. A., D'oid	Period of Immersion	Period of Washing	Culture Control of Hands	Culture Treated Hands	Culture Water Used	Culture Bact. Susp.	Irritation from Continued Use	Value as Germicide
Sulphur soap .....	"	3 min.	1 min.	+++	+++	+++	+++	None	None
Cresol soap .....	"	"	3 min.	+++	+++	+++	+++	"	"
Tar soap .....	"	"	1 min.	+++	+++	+++	+++	"	"
Naphtha soap .....	"	"	"	+++	+++	+++	+++	"	"
Ordinary (Ivory) .....	"	"	5 min.	+++	+	+++	+++	"	"
Flake (Lux) .....	"	"	1 min.	+++	+++	+++	+++	"	"
KL—HgI <sub>2</sub> 1:1000 Laby Liquid..	"	"	5 min.	+++	+++	+++	+++	"	"
Soap .....	"	"	5 min.	+++	+++	+++	+++	"	"
HgI <sub>2</sub> NoKI Liquid Soap.....	"	"	1 min.	+++	+++	+++	+++	Moderate	Good
Market HgI <sub>2</sub> Soap No. 1.....	"	"	"	+++	+++	+++	+++	None	None
Market HgI <sub>2</sub> Soap No. 2.....	"	"	"	+++	+++	+++	+++	Slight	Fair
Market HgI <sub>2</sub> Soap No. 1 after standing 6 months .....	"	"	"	+++	+++	+++	+++	Slight	Good
Market HgI <sub>2</sub> Soap No. 2.....	"	"	"	+++	+++	+++	+++	None	None
Market HgI <sub>2</sub> Soap No. 3.....	"	"	"	+++	+++	+++	+++	Slight	Fair
Market HgI <sub>2</sub> Soap No. 3.....	"	"	"	+++	+++	+++	+++	None	None

— = no growth, + = from 1-50 colonies per plate, ++ = 50-200 colonies, +++ = 200 = infinity +++ = infinite number of colonies per plate.

TABLE II

Bacterial Suspension Equals 20 Billions of Organisms (Staphy. Aureus and Diphtheroids)

Substance—	Amounts in 1000 cc.	Period of Immersion	Period of Washing	Culture Control of Hands	Culture Treated Hands	Culture Water Used	Culture Bact. Susp.	Irritation from Continued Use	Value
Pearson's Creolin .....	5 cc.	3 min.	1 min.	+++	++	+	+++	Marked	None
" .....	15 cc.	"	"	+++	++	+	+++	Very	"
Lysol .....	5 cc.	"	"	+++	+	+	+++	Marked	"
" .....	15 cc.	"	"	+++	+	+	+++	Slight	"
Lig. Cresolis Comp.....	5 cc.	"	"	+++	+	+	+++	Marked	"
" .....	15 cc.	"	"	+++	+	+	+++	None	"
Gly. Phenol. ....	15 cc.	"	"	+++	++	+	+++	Slight	"
Gly. Phenol. ....	15 cc.	"	"	+++	++	+	+++	None	"
Crude Phenol .....	5 cc.	"	"	+++	+	+	+++	Very	"
Wescol .....	5 cc.	"	"	+++	+	+	+++	Marked	"

destroying agent is either insufficient or else the time required by it to exert lethal action is longer than the selected period of one minute.

Next we considered the use of dilute ammonia water, with the thought that it would be valuable from either the hydroxyl ( $\text{OH}$ ) ion, which is known to be destructive as well as cleansing, or the  $\text{NH}_3$  radical, which is deleterious to living protoplasm, probably through chemical union with aldehydes. This substance, however, failed to meet with all requirements.

The heavy metal group contains some of our most efficient germicides, which supposedly owe their action to the coagulation of albumin. Bichloride of mercury has an already established value, but is liable to produce irritation of the skin, and as we know from clinical experience, has in a number of cases been mistaken for medicine with serious and oftentimes fatal results. The closely related preparations, biniodide of mercury and mercuric iodide in potassium iodide solution, present the same dangers of irritation and toxicity and in addition are prohibitive from the standpoint of cost. In order to have a preparation belonging to the heavy metals and possessing more desirable features we examined copper sulphate.

This salt appeared to be nearly ideal in the possession of properties essential to a hand disinfectant and results of experiments demonstrate that it does possess most of the properties, but that it also has one serious drawback, namely, that organisms in the wash water are not destroyed within one minute.

Copper sulphate is inexpensive and known to most people as such or as blue stone or as blue vitriol; it can be obtained in any locality, and has many common uses. It has a blue color, and lends this color to a solution. If taken internally small doses would not be fatal and larger doses would act as an emetic, thereby preventing poisoning. Against

common use and is relatively inexpensive.

The germicidal action of the phenols and related groups has been attributed to the precipitation of albuminous material, but this is probably not the only factor concerned. It is more likely to be due to the chemical reaction of the phenols with aldehyde or amino groups within living protoplasm. However, we have not determined this point and have merely grouped members under phenols because as a class they are used for disinfectants.

A condensed tabulation of the examinations and results is given in Table II. Preparations belonging to the phenol group are unsatisfactory because they are too slow in exerting lethal action. A concentration sufficient to destroy bacteria within one minute would be entirely too irritating. In fact all of these are capable of producing marked irritation if used many times even in weak concentration.

Other groups of antiseptics were ruled out without being subjected to trial. Among these are the dyes and the oxidizing agents. The former could not be employed on account of discoloration of the hands or fabrics. The latter, represented by potassium permanganate, followed by oxalic acid, was ruled out on account of the process of manipulation being too extensive. Formaldehyde was considered undesirable on account of the danger of sensitization with subsequent production of a dermatitis.

One substance with high antiseptic properties is the hydrogen ion. In order to test this in common materials we selected sodium—acid—sulphate and vinegar. The former has been employed to sterilize drinking water, while the latter is in use in every household, both are easily obtained in any locality. Although they are non-irritating, they are not of value because the concentration of the



time, climate and other conditions it is remarkably stable.

Our experiments have shown that it will sterilize the hands in one minute, and that continued use will not cause any irritation of even very delicate skins.

Copper sulphate is unusual in exerting a germicidal action in low concentration when applied to skin, while the same and much greater strength solution will not destroy an equal number of bacteria in vitro. This fact led us to conduct many experiments to determine the reason for the strange behavior. At present we have drawn no conclusions, but hope to continue the work and possibly learn the secret of this activation of a comparatively poor germicide.

The property of destroying bacteria on hands was discovered when we subjected the chemical to the already mentioned test.

We had planned to determine the coefficient of resistance of pathogens poor in resistance to laboratory conditions of growth, using *Staphylococcus aureus* and

Diphtheroids as the standard bacteria, and a solution of copper sulphate as the test solution. We therefore attempted to first determine the best concentration of the salt to use, by using different strengths of copper sulphate, controlled with 1:75 phenol, and the organisms mentioned above, according to the technique of the Pennsylvania Department of Health Laboratories,\* in testing the action of prophylactics. In Table III are some of the records of these experiments:

It is readily seen that neither high nor low dilutions of copper sulphate will destroy the number of bacteria employed within one minute. In contrast to this is the action exerted when in contact with hands. Herewith is a table showing the results when copper sulphate 1:100 is used on hands for one minute. The hands in these cases were not previously immersed in a bacterial suspension.

\*Standard Requirements and Methods of Testing Venereal Early Treatment Preparations—Practiced by the Penn. Department of Health, Therapeutic Gaz., Dec. 15, 1920.

TABLE III

Bacterial suspension made with water (1cc. = 2 billion organisms)

Substance—	Amt.	Bact. Susp.	1 min.	2 min.	3 min.	4 min.	5 min.	Controls
Phenol 1:75 .....	1 cc.	0.1 cc.	+	—	—	—	—	—
Copper Sulphate 1:100 .....	1 cc.	0.1 cc.	+++	++	+	+	+	—
1:125 .....	1 cc.	0.1 cc.	+++	+++	++	++	+	—
To determine if higher solutions will act								
1:175 .....	1 cc.	0.1 cc.	+++	+++	++	++	++	+
1:500 .....	1 cc.	0.1 cc.	+++	+++	+++	+++	++	—
1:750 .....	1 cc.	0.1 cc.	+++	+++	+++	+++	+++	—
1:1000 .....	1 cc.	0.1 cc.	+++	+++	+++	+++	+++	—
1:2000 .....	1 cc.	0.1 cc.	+++	+++	+++	+++	+++	—

To determine the strength of copper sulphate necessary to kill 200 million organisms (0.1 cc. of usual suspension).

Substance—	Amt.	Bact. Susp.	Time 1 min.	Control	Bact. Susp.	Media Cont'l
Copper Sulphate—						
2 per cent .....	1 cc.	0.1 cc.	+++	—	+++	—
4 per cent .....	1 cc.	0.1 cc.	+++	—	+++	—
6 per cent .....	1 cc.	0.1 cc.	+++	—	+++	—
8 per cent .....	1 cc.	0.1 cc.	+++	—	+++	—
10 per cent .....	1 cc.	0.1 cc.	++	—	+++	—
12 per cent .....	1 cc.	0.1 cc.	+++	—	+++	—
14 per cent .....	1 cc.	0.1 cc.	++	—	+++	—
16 per cent .....	1 cc.	0.1 cc.	++	—	+++	—
18 per cent .....	1 cc.	0.1 cc.	++	—	+++	—
20 per cent .....	1 cc.	0.1 cc.	++	—	+++	—

TABLE IV

Hands not immersed in bacterial suspension			
Name	Control of Hands	Culture after Copper Sulp. 1 min.	Culture Wash Water
Dr. L. ....	+++	1 colony and 1 spore former	+
Mr. G. ....	++	—	++
Dr. W. ....	++	—	++
Miss F. ....	++	—	++
Miss B. ....	++	—	++
Miss J. ....	++	—	++
Mrs. A. ....	++	—	++
Miss G. ....	++	1 deep colony	++
Miss Gu. ....	+	1 deep colony	++
Hands immersed in bacterial suspension			
Dr. C. ....	+++	—	+
Dr. C. ....	+++	—	++

Results of these experiments show that the bacteria on the hands or those adhering to hands after voluntary contamination are destroyed within one minute, but the water containing the copper sulphate contained some organisms. The complete details of these experiments will be given in a later paper.

Having been unable to select an "ideal" antiseptic from any of the aforementioned groups we next examined the halogens. Iodine in potassium iodide solution was eliminated by the prohibitive cost. Bromine and fluorine compounds were not considered desirable on account of the cost and dangerous nature of the compounds. Chlorine was represented by a proprietary article "Nuklorene" and by chlorinated lime. The former is lacking in germicidal power, and difficult of solution. The chloride of lime was discarded on account of caustic action on the hands and the disagreeable odor.

We then attempted modification of chlorinated lime, or free chlorine, and prepared a chlorinated solution of gela-

TABLE V

Substance—	Excluding under the nails	Organisms 20 bil. in 1000 cc. Sta. and Droids	Period of Immersion	Period of Washing	Culture Control of Hands	Culture Treated Hands	Culture Water Used	Culture Bact. Susp.	Irritation	Value
Sta. B.—1000 cc. Nuklorene....		"	3 min.	1 min.	+++	++	+-	+++	None	None
Chlorinated Lime .....		"	"	"	+++	++	+-	+++	Marked	Too Irritating
Chlorinated Gelatine .....		"	"	"	+++	++	+-	+++	None	None
3 gm. 1000 cc. Eupad.....		"	"	"	+++	++	+-	+++	None	Good

In Table VI are presented the results when various quantities and periods of time are used.

TABLE VI

Eupad—	Excluding under the nails	20 Bil. 1000 cc.	Period of Immersion	Period of Washing	Culture Control of Hands	Culture Treated Hands	Culture Water Used	Culture Bact.	Irritation	Fresh Solution
1 gm.-1000 cc.	"	"	3 min.	1 min.	+++	++	+	+++	None	"
2 gm.-1000 cc.	"	"	"	"	+++	++	+	+++	None	"
3 gm.-1000 cc.	"	"	"	"	+++	++	+	+++	None	"
4 gm.-1000 cc.	"	"	"	"	+++	++	+	+++	None	"
3 gm.-1000 cc.	"	"	"	45 sec.	+++	++	+	+++	"	"
3 gm.-1000 cc.	"	"	"	30 "	+++	++	+	+++	"	"
3 gm.-1000 cc.	"	"	"	15 "	+++	++	+	+++	"	"
3 gm.-1000 cc.	"	"	"	1 min.	+++	++	+	+++	"	"
3 gm.-1000 cc.	"	"	"	"	+++	—	—	+++	None	After standing 1/2 hour
3 gm.-1000 cc.	"	"	"	"	+++	++	++	+++	None	After standing 2 hours
3 gm.-1000 cc.	"	"	"	"	+++	++	++	+++	None	After standing 4 hours
3 gm.-1000 cc.	"	"	"	"	+++	++	++	+++	None	After standing 24 hours
3 gm.-1000 cc.	"	"	"	"	+++	+	—	+++	None	After 5 washings
3 gm.-1000 cc.	"	"	"	"	+++	+	—	+++	None	After 25 washings
3 gm.-1000 cc.	"	"	"	"	+++	+	—	+++	"	After 40 washings
3 gm.-1000 cc.	"	"	"	"	+++	+	—	+++	"	Held in envelope 3 weeks

tine. This solution lacks sufficient germicidal activity. The other modification examined is Eupad, a mixture of equal parts by weight of chlorinated lime and boric acid. The properties and use of this compound have already been given. It may be of interest to insert here a condensed tabulation of some of the results of experiments.

The results of these experiments show that Eupad is capable of exerting germicidal action within a period of 15 seconds, and is valuable for at least 25-30 washings, and can be exposed in solution in an open vessel for two hours or more without loss of action. It can be kept in envelopes which are coated with paraffin, without loss of chlorine content.

The relative cost of the various preparations is of considerable importance, the especially manufactured preparations being very expensive. A few figures for comparison are Bichloride of Mercury, \$2.10 a pound, Mercuric Iodide, \$5.15 a pound, Nuklorene, \$1.00 a bottle of 100

tablets, Copper Sulphate .20 a pound, Chloride of Lime, .15 a pound, Boric Acid, .30 a pound. The amount of each of the latter necessary is 1.5 grams, thus making a comparatively low figure for this preparation.

#### *SUMMARY:*

1. Eupad, a mixture of equal parts of boric acid and chlorinated lime, is recommended as a substance to be employed in the strength of 3 grams (1 teaspoonful) to 1000 cc. (1 qt. of water) for disinfecting the hands after contact with contagious diseases.

2. The properties required of such a preparation, and the essential principles on which the tests are based are described in detail.

3. The substances are grouped according to the element or radical which is credited with the germicidal action.

4. Condensed tables showing the action of Eupad and other substances examined are included.



### RAILROAD RATES

A special rate of one-and-a-half fares for the round trip will be in effect for the Annual Meeting, except from New England states. For Pacific Coast cities the rates will be the regular winter round-trip rates, which are somewhat lower than the rates made on the one-and-a-half fare basis.

Be on the lookout for the joint number of the August and September NEWS LETTER for detailed rates.

This number of the NEWS LETTER will also contain a coupon on which a request may be made for the identification certificate which will entitle you to the reduced rates. Reduced rates can not be obtained without this certificate.

# MEASURING RODS OF MORTALITY RATES

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Charleston, W. Va.

Determination of constant factors is of fundamental importance in vital statistics. Possibilities of measuring the role of filth-borne and respiratory diseases in crude death rates are here shown. The relative values of the constants of these two types of disease offer food for thought in preventive health administration.

THE accuracy of the fact that two types of disease, namely, filth-borne and respiratory, are epidemiologically the large factors in the possible reduction of mortality rates, all causes, should be reflected in the possibility of their being measured as constituent parts of the total mortality rate. I have recently shown it possible to figure rather accurately the infant mortality rate by estimating the sum of three factors; namely, the bed rock irreducible of the first month of life, plus the infant diarrhea mortality rate under age 1 multiplied by a constant 1.23, plus the respiratory rate under age 1 multiplied by the constant 2.3.\* A study of the vital statistics of the Bureau of the Census for the years 1911-1917, inclusive, giving the rates for the total registration area and its component parts, show that our premise is correct. Allowing a figure 5.5 for an irreducible mortality rate per 1,000 population composed of other diseases than the two types mentioned, using the figure .06 as the constant for the filth-borne diseases and the figure 2.6 for that for the respiratory diseases, I find as nearly a satisfactory correlation of the estimated and the actual mortality rates as for the infant mortality rate. The following table shows the actual yearly mortality rate and that estimated one ac-

quired by multiplying the sum of the rates for typhoid and infant diarrhea by .06, plus the sum of the rates for measles, whooping cough, influenza, pulmonary tuberculosis, bronchitis and total pneumonias by 2.6, plus the irreducible figure 5.5.

Section of U. S. A.	Year	Actual Rate	Estimated Rate
Total registration area.....	1915	13.502	13.378
Cities in registration states....	1915	14.197	14.280
Rural area of registration states	1915	12.344	12.453
California .....	1915	13.799	13.276
San Francisco .....	1915	15.921	14.373
Connecticut .....	1915	14.937	14.297
Bridgeport .....	1915	15.426	15.402
New Haven .....	1915	15.71	14.334
Massachusetts .....	1915	14.334	14.075
Boston .....	1915	16.131	15.880
Minnesota .....	1915	11.150	12.030
Minneapolis .....	1915	11.452	12.222
New York .....	1915	14.312	15.437
New York City.....	1915	13.943	16.138
North Carolina .....	1915	19.661	17.397
Pennsylvania .....	1915	14.876	14.535
Philadelphia .....	1915	15.615	15.719
Total registration area.....	1916	13.989	13.997
Cities in registration area.....	1916	14.992	14.862
Rural area of registration states	1916	12.877	13.165
California .....	1916	13.536	12.895
San Francisco .....	1916	15.434	13.823
Connecticut .....	1916	16.088	16.451
Bridgeport .....	1916	19.362	19.654
New Haven .....	1915	15.711	14.334
Massachusetts .....	1916	15.069	14.816
Boston .....	1916	16.872	16.166
Minnesota .....	1916	12.064	12.172
Minneapolis .....	1916	12.414	12.632
New York .....	1916	14.485	15.071
New York City.....	1916	13.914	15.407
North Carolina .....	1916	19.034	18.036
Total registration area.....	1917	14.165	14.274
Cities in registration states....	1917	15.151	15.046
Rural areas of registration states	1917	12.979	11.776
California .....	1917	13.602	13.135
San Francisco .....	1917	15.040	13.724
Connecticut .....	1917	17.065	16.479
Bridgeport .....	1917	18.200	18.696
New Haven .....	1917	17.094	16.319
Massachusetts .....	1917	14.913	14.388
Boston .....	1917	16.546	15.941
Minnesota .....	1917	11.737	12.079

\*D. M. Lewis, Measuring Rods of Infant Mortality Rates. A. J. P. H., August, 1921.

Section of U. S. A	Year	Actual Rate	Estimated Rate
Minneapolis .....	1917	11.817	12.137.
New York .....	1917	11.389	15.276
New York City.....	1917	13.685	15.351
North Carolina .....	1917	20.742	19.902

The very general agreement of rates in this sampling of total registration area, its component parts of cities and rural areas, and of such states and cities of those states as represent the varied types of completeness or otherwise of registration, of relating variations of infectious diseases, is the more satisfactory when consideration should be taken of the caution of the Census Bureau as to errors of estimated population. There are outstanding the following discrepancies: North Carolina shows for each of the three years a much lower estimated rate than the actual. The records show that this state of all the above sampled, alone shows a sufficiently high excess of ill-defined causes as would in terms of other states or cities, correct and bring up the estimated figure, were the excess content brought into the two groups of diseases. San Francisco alone of the cities shows a much lower estimated rate; the records show that alone of the cities, San Francisco has a suicide rate of upwards of one-half excess over the state for 1917 and three times as much for 1916, while there is no excess in 1915. Inasmuch as the variation of each year of the estimated over the actual recorded is the same, it may be possible that the discrepancy is one of estimation of population. The possibility of checking up excesses of violent deaths and suicides and ill-defined or all other defined diseases as possibly belonging to the respiratory group is well seen in the following instance: Framingham, Mass., for 1917 had a recorded death rate of 16.185; the estimated rate would be 12.138. Should the excess of violent deaths, suicides and other defined diseases which alone exceed markedly the figures for the state, which excess amounts to 1.12, be placed as respiratory in view of the absence of any typhoid and added to the respiratory rate there would be an estimated rate of 15.830, agreeing

closely with the actual rate. The last discrepancy is a most interesting one: Alone of all cities, New York City for each year is notable for a much less actual recorded rate than the estimated; according to the census reports it is as well the only city which has lower actual rates than those for the state. The estimated rates on the other hand, in agreement with all other cities, shows a higher rate for the city than the state. Inasmuch as there does not present in the summaries of the specific parts of the mortality rates each year any marked diminution of rates for the city over the state, it would seem that the error lies in an excessive estimated population for the city. The possibility that the rock bottom figure of 5.5 has been affected, alone of all the larger cities, is tenable and if so proven would make comparisons of the recorded and estimated total mortality yet more significant. The possibility of the origin of excesses of abridged International list No. 37 is rather remarkably shown in the following instance: Ann Arbor, Michigan, for 1917 presents a rate of 31.913; the estimated rate would be 16.604. The statistics show an excess of No. 37, all other defined diseases, of 5.000 and one of .874 for violent deaths and suicides over those of the state. When the figure 5.874 is brought into estimated group as a part of the respiratory disease and so correlated, the estimated rate is 31.877.

Like Pasteur, I have felt for years that there must be laws controlling Nature's methods. Unavailing have been innumerable attempts to correlate by constants and all combinations of classes of diseases, crude death rates, until a possible way was shown after the method of that recently shown for the infant mortality rate.

In sum, there would seem possible, measuring rods of mortality rates, all causes. Two of these, that of filth-borne and that of respiratory diseases, would seem of great value not only in checking up comparative amounts of such pre-

ventable diseases, but of demonstrating where unusual excesses of other recorded constituent parts of the total rate belong, and lastly, failing the fact that errors of

estimated population are involved, of showing that there are other measuring rods bound up in the figure used as an irreducible.



## BOYS' HEALTH PAGEANT

Unique in many of its features was the Health Section of the Boys' Loyalty Parade in New York City on April 30, 1921. It was with a beaming smile and a righteous purpose that old Milk Bottle strode down Fifth Avenue on that occasion, inscribed with the legend "At Least a Pint of Milk a Day" and driving before him the beverages which he should replace, Tea and Coffee, represented by their conventional receptacles.

height, that factor which has recently come so strongly into public health work for the child, and which is food for thought.

Oatmeal and Double Boiler, Brown Bread and Glass O' Water preceded the line of green vegetables. Of these, Charlie Carrot was the central figure. Bill Beet,



*In eager conference Bill Beet, Robert Spring Onion and Charlie Carrot plan to invade the diet of childhood.*

Surrounded by all the child health essentials, Mr. Milk Bottle had a march of triumph, and there is everywhere in the Metropolis indication that the lesson he taught was learned joyfully by the amused populace.

Judge Scales in cap and wig was an imposing figure with his sheriffs bearing large signs, "What a Boy Should Weigh," and "Weight for Height," and "What is Yours?" flanking his advance. These gave to everyone the relations of weight and

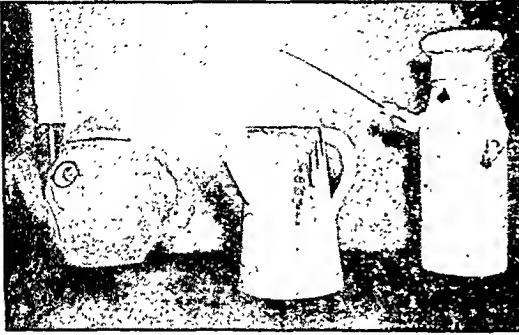


*Henry Pea, Tom Celery and Samuel Bean show a solid front for good health habits.*

Robert Onion, Henry Bean, Samuel Pea, Patrick Spinach and Tom Celery marched beside him, while Orange, Apple and Egg made an amusing trio.

There was a line of health habits, in

which Soap and Tooth Brush marched beside the Boy-in-Bathtub. The application



*Jovial Old Milk Bottle has banished from Health-land Tea and Coffee thieves of Child Health.*

of these was evident to everyone and was loudly applauded. Sleeping-Long-Hours-with-Windows-Open, a Boy in pajamas walking in a window frame, finished the pageant.

This popular presentation in a parade was one of the many bright ideas originating with the Child Health Organization. From the very beginning, when it initiated its happy, care-free, child health trademark, as it might be called, the Association has had a succession of bright ideas in methods of interesting children in acquiring health habits. In this procession, it unquestionably scored again.



**Health Ambassadors.**—In an interview with a correspondent of the *Washington Star*, Brig. Gen. C. E. Sawyer, the president's personal physician proposes that this country send envoys of health to South American countries. Gen. Sawyer is quoted as follows:

"I hope to see a public health service that will send a man into every country in South America, where they will serve the dual purpose of making those countries safe places for Americans to live in, and at the same time help the South American to put into practice what we have learned in sanitation and care of the public health.

"In South America, Central America and Mexico there lies an immense field for our commercial development. But before we can trade with the South American, we must win his confidence, establish a relationship that will assure him we want his good will as well as his trade. The United States has made more progress in sanitation than any country in the world, and the American doctor has a great opportunity to educate his South American neighbor in

what he has learned along these lines."—Ben. McKelway, *Washington Star*, April 24, 1921. (*J. A. T.*)



**Popular Health Magazine in Yugoslavia.**—A popular monthly health review published by the Ministry of Public Health of Yugoslavia in collaboration with the Nation Public Health Association, a voluntary agency with headquarters in Belgrade, has a circulation of 100,000 according to a writer in the March-April 1921 Bulletin of the League of Red Cross Societies. Besides this magazine many other kinds of health education and propaganda are carried on. The sum used for the teaching of hygiene is 3 per cent of the budget of the Ministry and amounts to more than two millions of dinars (a dinar is 19½ cents). Books, posters, and moving pictures are used, and schools for teaching hygiene have been established in six communities. The Ministry also coöperates with the Temperance Association.—Dr. A. Stamper in March-April, 1921, *Bulletin; League of Red Cross Societies*. (*J. A. T.*)



**The NEWS LETTER** for August, combined with that for September, is due from the press on September 5, and will have information of value about the hotel rates for the Fiftieth Annual Meeting of the Association. Also facts about the Health Institute. Watch for it.

# INDUSTRIAL APPLICATION OF ARMY AND NAVY VENEREAL DISEASE RECORDS

RAY H. EVERETT AND MARY AUGUSTA CLARK

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Venereal diseases are a much greater handicap in industry than existing industrial statistics indicate. This inference may properly be drawn from the 1920 reports of absences from duty in Army and Navy. In the former more than 13% and in the latter 15% of all absences were from venereal diseases.

“FOR personal reasons” is a heading under which many industrial physicians enter that important percentage of absentees for whom no more definite diagnosis can be made. The student of industrial disabilities mourns the scarcity of statistics; so do the men who are responsible for the health of employes, but they admit their inability to rend this “personal reason” veil.

But few plants maintain records of specific causes of disability among employees and resort to other sources has been generally without avail. For instance the U. S. Public Health Service in an attempt to study this problem found it necessary to utilize records of sick benefit organizations of employees as a source for data.<sup>1</sup> Records of this character do not furnish a complete, impartial picture of the amount of sickness in any general industrial group because, being membership organizations, they include only a selected group of persons, and because they discriminate against certain disabilities, refusing to pay benefits for them. These records are particularly inadequate with respect to the venereal diseases because “sick benefits are denied for a venereal disease.”

As a general thing it may be said that venereal diseases are the stepchildren in the industrial statistics family. Few if any of the usual aids toward accurate adjudgment and computation are present

in the majority of cases of venereally infected workers in industry. That may be why a tabulation of the records of a rubber company employing 18,000 persons during the year ending October 31, 1920, showed but two cases of syphilis and six cases of gonorrhea per 1,000 male employees.<sup>1</sup> Other diseases were reported with far greater frequency, there being 196 cases of “excessive colds” and 279 cases of “all diseases of the respiratory system,” whereas the venereal diseases accounted for less than one-half of one percent of all sicknesses reported during the year. This was in an industry whose records are considered among the best, where real thought and effort have been expended in an endeavor to check industrial disability. Hence it is patent that we must go to other than industrial sources for authentic indications of disability resulting from venereal diseases.

Army and Navy statistics are of interest and value in this regard because adequate reports are available of health conditions in these two large groups of men, reports which include records kept of admissions to sick report for all sicknesses including the venereal diseases. Investigations and inspections are made to detect conditions which the men might fail to report with special reference to detecting venereal diseases. Therefore it is possible to study these diseases



in the Service as it is not possible in industry.

The 1920 reports of the Surgeon Generals of the Army<sup>2</sup> and the Navy<sup>3</sup> giving figures for the calendar year 1919 are the latest and in many respects the best for this purpose. This is especially true of the Army report since more disability than usual was detected in 1919 because of the thorough physical examinations given the men preceding demobilization. "Personal reasons" were not considered sufficient explanations, as it is possible, of course, in the Army to compel examinations. Hence, during 1919 a total of 26,815 venereal disease infections were reported among enlisted men in the United States, 6,557 cases of syphilis, 16,246 cases of gonorrhea, and 4,012 of chancroid. Since the average strength of this portion of the Army was 306,963 men this gives an annual rate for the venereal disease group of 87.36 per 1,000 mean strength—a rate more than ten times as great as that of 8 per 1,000 reported among employes of the rubber plant.

Among these 306,963 Army men venereal diseases accounted for 11% of all cases of sickness reported, ranking as the most important cause for sickness. Here is a great contrast to the "less than one-half of one percent" shown in the records of the rubber company. Even though many of the essential mutual factors for making a true comparison are lacking, there is at least an indication that a greater number of male industrial employes are infected with a venereal disease than present industrial statistics show.

Figures of the Army and Navy are not directly comparable, since those quoted on the former show conditions only among soldiers stationed in the United States, whereas the Navy figures report conditions in the entire Navy including officers and persons in all occupations in the Navy service; clerks, mechanics, culinary workers, etc. They

also include men stationed in all parts of the world.

In the Navy tabulation of various occupational groups wide and sometimes startling differences are shown in infection rates. There might be grounds for anticipating the rate of one per 1,000 among midshipmen, the lowest figure given, but who would expect to find the highest rate, 300 per 1,000, among culinary workers? A total of 33,350 cases of venereal disease was reported for the entire Navy during 1919, divided as follows: 4,920 syphilis, 20,411 gonorrhea, and 8,019 chancroid. Since the average complement was 298,774 this gives an annual rate of 111.62 per 1,000—almost fourteen times as high as the 8 per 1,000 mentioned in the records of the rubber company.

That the Eighteenth Amendment and the successful nation-wide fight against commercial prostitution have been important factors in the reduction of venereal disease rates is also indicated by Navy reports. Navy Medical Bulletin 105 (April 15, 1921)<sup>4</sup> states in an opening paragraph, "Shore liberty for a considerable proportion of the men of the Navy in foreign ports where foreign language was spoken and where alcoholic beverages could be obtained without limit was followed, as predicted, by an increase in the incidence of venereal disease."

In an analysis of 340 annual sanitary reports for 1920 made to determine why the incidence rate was higher on some ships than on others the cause most frequently mentioned as being responsible for high rates was the prevalence of commercial prostitution, particularly of the "segregated district" type, in the ports visited or, in the case of shore stations, within the liberty area.

Ships spending a greater part of the year in foreign ports almost invariably reported a very high incidence of infection, as illustrated by the rates per 1,000 of complement per annum for the following ships: U. S. S. Chattanooga, 650;

U. S. S. Scorpion, 663; U. S. S. Galveston, 548; U. S. S. Pittsburgh, 396; and U. S. S. Helena, 455. Ships visiting only ports in the United States or ports where prostitution was not practiced openly all showed lower rates of infection, says the bulletin, citing as an example the U. S. S. Oklahoma with a rate of about 62 per 1,000 of complement per annum.

The medical officers apparently anticipated the greater incidence of venereal disease when visiting foreign ports, for such statements as follow were frequently noted in their comments on high rates:

A very good record inasmuch as the vessel was in foreign ports most of the time.

The venereal disease rate has been very high in spite of every effort to control it. This is due to the fact that the ship was stationed at Constantinople during the first half of the year.

The number of venereal diseases contracted by the crew was very low, taking into consideration the great number of Chinese women who were infected.

As a result of conditions ashore in China, venereal disease rates were very high.

Over half the admissions for the year have been for venereal diseases. This has been due to the prevalence of prostitution in practically all of the ports visited.

This high rate is not excessive, as prostitution exists in all foreign ports.

The high incidence of venereal disease is believed to be due to (1) the prevalence of prostitution in China, (2) the youth and inexperience of the men.

When prostitution was suppressed in the vicinity of shore stations lower rates followed as shown by the following extracts:

The venereal disease situation shows a marked improvement, there being no admissions for venereal disease on this station (naval station, Cavite), the U. S. S. Genesee or the U. S. S. Piscataqua during the month of December. The decrease in admissions for venereal disease during the past year is probably due to the fact that houses of prostitution in the vicinity of San Roque and Cavite have been closed.

Numerous diseased prostitutes in Pensacola, Florida, were incarcerated and their brothels closed. This action had a marked effect upon the venereal situation, reducing the number of venereal admissions on the station (naval station, Pensacola, Fla.) from approximately 30 per month to a minimum of 3 per month.

A constant effort is being made by the local sanitary department to control clandestine prostitution; as a result, the venereal disease admission rates have been lowered. (Marine Barracks, St. Thomas, Virgin Islands.)

The value of educational measures was variously estimated. The following statements noting beneficial effects are quoted:

The crew of this vessel has received special instructions in personal hygiene and venereal prophylaxis during the year. A gradual though noticeable decrease in the number of exposures resulted. It is the opinion of the medical officer that personal talks with the men, with special reference to the complications that may occur if infected, is far more efficacious than the distribution of pamphlets and posters.

It is believed that the low admission rate for venereal diseases may be attributed to educational propaganda and restriction of the sale of alcoholic beverages.

The fleet surgeon conducted an energetic campaign which materially checked the spread of venereal infections, particularly while the fleet was in Bremerton.

Reports from the 13th naval district, the navy yard at Portsmouth, N. H., and from the U. S. S. Rappahannock stated that the work of the Interdepartmental Social Hygiene Board had been especially valuable in benefiting social conditions in the neighborhood of the stations, and thus reducing the number of exposures.

The three diseases most frequently reported by the navy in the report of 1920 were tonsillitis with 20,908 cases, gonorrhea with 20,411 cases, and influenza with 20,366 cases. Thus it will be noted that gonorrhea was more common than any other disease except tonsillitis. The incidence of influenza was unusual as was the case in 1917 and 1918 when this

disease was responsible for so much disability.

Perhaps the most important figures to industry are those relating to the extent of disability due to venereal disease, and the Army and Navy reports both give valuable data in this regard. Infected individuals in both services are required to take treatment, thereby causing, in all probability, more immediate absence from duty than would occur in an industrial group where treatment is voluntary. On the other hand chronic gonorrheal conditions and latent syphilis are more liable to occur in industrial workers and the resulting losses in time, money, and suffering are inestimable.

The number of sick days occasioned by venereal diseases in the Army and Navy is very high and figures of total time lost would be even higher save for the fact that no record is, or can be, kept of the minor disability suffered by those who are not seriously enough ill to lose entire days.

The report of the Army shows a loss from duty of 871,533 days in 1919 because of these diseases among enlisted men in the United States. The average daily absence was 7.78 men per 1,000. In the entire Navy during the same year 558,421 sick days were attributed to the venereal diseases, accounting for a daily average of 1,533 individuals absent from duty. Over 13% of all absences in the Army and 15% in the Navy on account of sickness were occasioned by this disease group. They rank second in both services as causes for absence, being preceded only by tuberculosis in the Army and the influenza-pneumonia group in the Navy. Gonorrhea by itself ranks second in importance in the Army, syphilis coming in seventh place.

The following extract from a previous article<sup>5</sup> deals briefly with one handicap under which the Army labored during the war period in its effort to develop and maintain an efficient fighting machine:

Of the 967,486 men in the group known

as the "second million," there were 54,843, or 5.6%, infected with a venereal disease. The annual report of the Surgeon General of the Army for 1919, in comparing these figures with those for the first 500,000 and first million says, "It is probable that the figures for the second million of 5.6 per cent showed more clearly the correct percentage of the drafted men from civil life who were infected." During the year 1917, gonorrhea was the commonest cause of admission to sick report among soldiers in the United States and in 1918 was second only to influenza. In 1918 syphilis, gonorrhea, and chancroid together were second only to influenza in number of admissions, exceeding by 87,871 admissions bronchitis, the next most frequent cause. Hence, it is evident that, with the exception of the unusual epidemic of influenza which prevailed in 1918, venereal infection was the greatest cause of disability in the army during the world war.

An interesting statement regarding the cost of venereal diseases to the Army appears in a letter written by the chief of the Division of Sanitation Office.<sup>6</sup> "It may be conservatively estimated, however, that the actual loss to the Army caused by the venereal diseases during 1919 was not less than \$15,000,000," says the officer. This estimate does not take into account what the infected soldier lost through reduced pay.

Since no one is more ready to admit the inadequacy of industrial statistics on venereal disease than those who would profit most by them, the main purpose of this study is to give public health workers and industrial physicians the most available and comparable figures. Then they can at least realize that these diseases must have a considerable bearing on industrial disability even though they cannot approximate the extent of its responsibility. The problem is there, though its terms cannot be exactly defined as yet.

A recent interrogatory addressed to 63 physicians and surgeons in charge of large industrial medical organizations brought forth many opinions and suggestions relative to the subject. The question, "Could

a thorough-going, scientific study of the many-sided problem of the relation of venereal diseases to industry be made?" was answered in the affirmative by three out of four of those who considered it. The same proportion agreed that such a study should be made.

To the query, "How should it be made?" the answers divided into four recommendations. The first advocated educational work, especially among owners, boards of directors, managers, and executives to rouse their direct interest in such a study; the second suggested more comprehensive questionnaires; the third was for "an investigation of conditions in one thoroughly organized corporation"; the fourth would await "further development of medical service in industry" before undertaking the study.

On the question of whether an outside agency should make the study, a real division of opinion exists. The chief surgeon of one industry says, "The industrial physician is working out this problem slowly and sanely. Leave him alone. The medical chief of another industry, who favors an outside agency investigation, claims "There is a great opportunity for a good piece of work in this line." Practically all of the answers agree, however, with the sentiment ex-

pressed in the following extract: "Venereal disease is essentially a community problem and unless the community is actively interested little will be accomplished. Industry can only assist in solving the problem and that it is willing to do."

There is certainly a flash of silver in the industrial statistical clouds, a flash furnished by the continued and thoughtful consideration which the medical men of industry are giving to the many causes underlying that baffling "for-personal-reasons" heading.

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### JUBILEE HISTORICAL VOLUME

To commemorate the fiftieth anniversary of the establishment of the American Public Health Association, a jubilee historical volume entitled *Fifty Years of Public Health* will be published shortly before September 30, 1921. It will be in the form of seventeen historical essays on various aspects of public health work, written by as many leaders of public health thought in the United States. Members of the Association will be able to obtain the book at cost (\$2.00, paper; \$3.00, cloth) provided they order before publication. Non-members and all ordering after date of publication will pay \$3.00 and \$4.00 for the same volume.

On page vi of the front advertising section in this issue of the JOURNAL will be found a table of contents and a coupon which members may use for ordering. Fill it out and mail now!

# INFLUENCE OF PEPTONE ON INDOL FORMATION BY *BACILLUS COLI*

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"Of the making of peptone in varieties there is no end," might be the summing up of this paper. The author shows that the different kinds may give negative, weak or strong reactions for indol with a typical strain of *B. coli*. He suggests testing every lot of peptone, but the principle is evident, that this important product needs standardization.

ALTHOUGH the indol test is widely used in the differentiation of bacterial species, a search of the literature shows that almost no attention has been paid to the possible influence of different peptones on the formation of indol. Gorini<sup>1</sup> discusses in a general way the influence of the quality of peptones on bacterial metabolism, merely mentioning among other things that a culture of *B. coli* had produced indol with Witte's peptone and had failed to produce indol with an Italian peptone. Porcher and Panisset<sup>2</sup> describe an experiment in which the indol-producing power of four different peptones was tested with the same culture of *B. coli*, the results showing considerable difference between them. Aside from these two articles, the writer has failed to find any mention of the influence of peptone on indol formation by *B. coli*.

It seemed, therefore, worth while to inquire into the matter with special reference to peptones available in this country, and the work herein described was undertaken, using six different varieties of peptone and in general, several different samples of each different variety.

## EXPERIMENTAL WORK

The various samples of peptone were first of all tested for the presence of

tryptophan. One percent solutions were employed and these were tested by the following methods: Bromination, the paradimethylamidobenzaldehyd test and the glyoxylic-acid test.

The bromine test was performed by adding bromine water to the peptone solution drop by drop and noting whether or not a pink color was produced.

The test with p. dimethylamidobenzaldehyd was performed as follows: To 5 cc. of peptone solution there were added 1 cc. of a solution of p. dimethylamidobenzaldehyd (2 g. in 50 cc. concentrated HCl+50 cc. water) and 4 cc. of concentrated HCl. After standing 30 minutes or more the tube was examined to see if the characteristic blue color was present. This test will hereafter be designated the Herzfeld test, since the technique given is essentially that of Herzfeld, as described by Plimmer.<sup>3</sup>

The glyoxylic acid test was performed in the following manner: To 2 cc. of peptone solution there were added 2 cc. of glyoxylic acid solution (Benedict's modified Hopkins-Cole reagent)<sup>4</sup> and 6 cc of concentrated H<sub>2</sub>SO<sub>4</sub>. After 30 minutes or more the tube was examined to see if the characteristic blue or reddish violet color was present.

These one percent solutions of peptone

were then used for the growth of *B. coli* with no addition of sodium chloride. Where it was necessary the pH was adjusted to approximately pH 6.5 but as far as possible the solutions were used without adjustment of reaction.

In order that the seeding of the cultures might be as uniform as possible each tube was inoculated with one standard loopful of a 24-hour broth culture of *B. coli*, the amount of peptone solution in each tube being 10 cc.

After being incubated for from four to six days the cultures were tested for indol by a slightly modified Ehrlich method, as follows: 1 cc. of a 2% solution of paradimethylamidobenzaldehyd in 95% alcohol was added to each tube and then  $\frac{1}{2}$ cc. of concentrated HCl was added drop by drop. The tubes were allowed to stand for at least half an hour before being examined for the presence of the characteristic rose-red color.

The results of two such experiments are given in Table I. The numbers indicate the different kinds of peptone, while the letters indicate different samples of the same kind of peptone.

TABLE I.

Comparative Intensity of Indol and Tryptophan Reactions with Different Peptones

Experiment 1			
Peptone	Indol Reaction	Tryptophan Reaction	Remarks
1 A	Strong	Strong	{ Bromine and glyoxylic acid tests.
2 A	Negative	Weak	
3 A	Strong	Moderate	
4 A	Weak	No test made	{ Glyoxylic acid and Herzfeld tests.
5	Strong	Moderate	
6 A	Strong	Strong	
Experiment 2			
Peptone	Indol Reaction	Tryptophan Reaction	
1 B	Very strong	Glyoxylic acid	Herzfeld
1 C	Very strong	Strong	Strong
2 A	Negative	Weak	Negative
2 B	Negative	Weak	Negative
2 C	Weak	Weak	Negative
2 D	Moderate	Weak	Negative
2 E	Weak	Weak	Negative
2 F	Weak	Weak	Negative
3 A	Strong	Strong	Strong
4 B	Negative	Weak	Negative
5	Strong	Moderate	Moderate
6 A	Strong	Very strong	Very strong
6 B	Strong	Very strong	Very strong

The correlation observed between the indol tests and tryptophan tests would seem to indicate that a test for tryptophan

will show whether or not a peptone is suitable for indol production. A peptone giving a negative reaction or a very weak tryptophan reaction may be regarded as unsuitable for indol production, while a peptone giving a strong reaction may be considered suitable for the purpose. It should be noted, however, that in Experiment 2 peptone No. 6 gave the strongest reaction for tryptophan but peptone No. 1 gave the strongest test for indol.

Judging from the results of the two preceding experiments, it seemed that peptone No. 2 was not suitable for indol production and that peptone No. 4 was of doubtful value. But as peptone No. 2 is recommended for use in Dunham's solution with only 24 hours' incubation, further experiments were conducted in which it was tested along with several other peptones in the following manner:

The various peptones were used in making different lots of Dunham's peptone solution. Then in Experiment No. 3, six tubes of each lot were inoculated each with one oese of a 24-hour broth culture of *B. coli*. On each day afterward, up to six days, one tube from each lot was tested for indol by the Ehrlich test. In Experiment No. 4, on the contrary, inoculations were made each day for six successive days and all the tubes were tested for indol on the 7th day. The results of these two experiments are given in Table II.

It seems evident from the results of Experiments 3 and 4 that peptones No. 2 and No. 4 give good results with a short incubation time and poor results with increasing incubation time, while the reverse is true for peptone No. 6. Peptones No. 1 and No. 3 appear equally good with short or long periods of incubation.

The various peptones have been designated by number instead of by name because the object of the paper is not to show the superiority or inferiority of any particular brands of peptone, but rather to point out that "peptone" is a decidedly

TABLE II

Comparative Intensity of Indol Reactions with Different Peptones in Dunham Solutions

Peptone	Experiment 3					
	Number of Days Grown					
	1	2	3	4	5	6
1 A	Very strong	Very strong	Strong	Very strong	Very strong	Very strong
2 A	Moderate	Weak	Negative	Negative	Negative	Very weak
2 B	Weak	Negative	Negative	Negative	Negative	Weak
4 B	Moderate	Weak	Negative	Negative	Negative	Negative
6 B	Negative	Weak	Moderate	Strong	Strong	Strong

Peptone	Experiment 4					
	Number of Days Grown					
	1	2	3	4	5	6
1 A	Very strong	Very strong	Very strong	Very strong	Very strong	Very strong
1 B	Very strong	Very strong	Very strong	Very strong	Very strong	Very strong
2 A	Moderate		Decreasing intensity		Very weak	Negative
2 G	Strong		Decreasing intensity			Weak
3 B	Strong	Strong	Strong	Strong	Strong	Strong
4 B	Moderate		Decreasing intensity		Very weak	Negative
4 C	Strong		Decreasing intensity			Weak
6 B	Negative	Weak	Increasing intensity			Strong

variable quantity so far as indol production is concerned.

In this connection it should be noted that in "Standard Methods of Water Analysis" tryptophan broth is recommended for indol production. The use of so-called "standardized" peptones is, however, allowed and it seems quite probable that many, if not most, workers will use peptone, rather than tryptophan. If peptone be used the worker is strongly urged to disregard all claims for "standardization" and satisfy himself by actual test that the peptone he uses is suited for his purposes.

#### CONCLUSIONS

1. The varying composition of the different kinds of peptone available in this country may cause a typical strain of *B. coli* to give negative, weak or strong reactions for indol, depending on the

kind of peptone used, and the time of incubation.

2. It is advisable to test each new lot of peptone used in order to determine its suitability for indol production and also the optimum incubation time.

3. A test for the presence of tryptophan will usually indicate the relative value of any given sample of peptone for use in making indol tests.

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- (4) Benedict, Stanley R. A Note on the Preparation of Glyoxylic Acid as a Reagent. Journal of Biolog. Chem. 1909. Vol. 6, p. 51.



#### WATCH FOR THE NEWS LETTER

In order to reach the membership of the Association more effectively the August NEWS LETTER has been omitted and will be combined with the September issue in a special Semicentennial Meeting Number giving important news concerning all the activities of the meeting.

Watch for this issue. If you are coming to the meeting you will need it. Instruct your secretary always to deliver the NEWS LETTER promptly to your desk.

# THE HEALTH INSTITUTE

What is the Health Institute?  
When is it going to be held?  
How shall I register?

The Health Institute will consist essentially of a series of demonstrations for health workers of the health activities in New York City, both official and voluntary. The fundamental purpose is to enable the visitor to inform himself upon those phases of health administration which might be applicable in his own community. Thus, the visiting epidemiologist can investigate the routine procedures of isolation quarantine, and diagnostic tests. The child hygiene specialist will be able to see in actual operation pre-natal clinics, milk stations, baby welfare stations, nutrition clinics, and school inspection work. Where necessary, there will be lectures to supplement the demonstrations.

## Dates

The Health Institute will be conducted during the week preceding the Annual Meeting; in other words, during some of the days between November 7th and 12th. The days being tentatively adopted are Tuesday, Wednesday, Thursday and Friday, November 8th, 9th, 10th and 11th. If the demand for the Institute courses warrants, additional days will be added. The final announcement on this subject will be made in one of the Association publications at least one month before the meeting. The Annual Meeting itself will be held November 14th to 18th, Monday to Friday inclusive.

## Joint Sponsors

The joint sponsors of the Institute are the American Public Health Association, the Health Department of the City of New York, the New York State

Health Department, the United States Public Health Service, and the National Health Council. In addition to these bodies, over one hundred health societies, municipal bureaus, and universities have offered their co-operation for the success of the project.

Dr. W. A. Evans is chairman of the committee on Health Institute, and Dr. Donald B. Armstrong, acting director of the National Health Council, is serving as director of the Institute.

## Subjects

For administrative purposes the Institute has been divided into nine groups of demonstrations. These subdivisions and their chairmen are as follows:

Child Hygiene—Dr. S. Josephine Baker, Chairman; Dr. Jacob Sobel, Vice-Chairman.

Socio-Health Activities—Mr. Bailey B. Burritt, Chairman; Mr. John C. Gebhart, Vice Chairman.

Laboratory—Dr. William H. Park, Chairman.

Vital Statistics—Prof. R. E. Chaddock, Chairman.

Communicable Diseases—Dr. L. I. Harris, Chairman; Dr. William F. Snow, Vice Chairman.

Industrial Hygiene—Dr. C. E. Ford, Chairman.

Food and Drugs—Dr. Payne B. Parsons, Chairman.

Sanitary Engineering—Mr. M. N. Baker, Acting Chairman.

Public Health Nursing—Miss Elizabeth Gregg, Chairman.

Conference Member—Dr. C. F. Bolduan.

Only those demonstrations will be given for which there is a demand. Requests are invited for demonstrations



in addition to those already planned. The duration of demonstrations will naturally vary. Where a number of demonstrations are contiguous and the subject matter is easily explained, the demonstrations may be as short as one hour. In other cases a half day or a full day will be needed. In general, an attempt will be made to economize the time and strength of the delegates by grouping demonstrations according to distance.

### Send in Your Choices Now!

The following outline is given in order to permit members to indicate for the information of the Institute Committee the types of demonstrations most in demand by the membership. The outline is necessarily prepared somewhat hastily, and details are therefore omitted. They will, how-

ever, be supplied in later issues of the JOURNAL and NEWS LETTER.

If you expect to attend the Annual Meeting and if there is any possibility whatever of your being able to attend the Institute during four days of the preceding week, turn to page xxix, note on the coupon provided the numbers of the demonstrations in which you are interested, and forward to the director of the Institute, Dr. Donald B. Armstrong, National Health Council, 370 Seventh Avenue, New York City.

If there are other demonstrations which you would like to have added, submit your suggestion on the margin of the coupon.

Only those demonstrations will be established in which interest is manifested, so register your preferences, tear off the coupon (page xxix), and mail it now.

## TENTATIVE LIST OF DEMONSTRATIONS HEALTH INSTITUTE, NEW YORK CITY, NOV. 8-11

### Vital Statistics

#### Demonstrations proposed:

1. Mechanical devices, research, etc., Metropolitan Life Insurance Company, Statistical Department.
2. Division of New York City into sanitary areas for administrative and research purposes, New York Federation of Churches. Exhibit of maps and charts.
3. Division of Vital Statistics, New York City Health Department, methods of registration and recording births, deaths, etc.
4. Central exhibit of record forms for all varieties of clinic and hospital work, health centers, nursing associations, industrial plants, etc.

### Hygiene of Mother and Child

#### Demonstrations proposed:

5. Meeting of licensed midwives at Borough of Manhattan Office. Demonstration at Bellevue Hospital School of Midwifery.
6. Pre-natal clinic and Baby Health Station Service.

7. Day nursery, child-caring institutions, and pre-school age clinics.

8. Little Mothers' League and Health League.

9. School Medical Inspection.

- a. Morning inspection.
- b. Routine classroom inspection.
- c. Physical examination.
- d. Consultation of parents.

10. Eye and dental clinics, Department of Health.

11. Sight conservation classes, open-air classes, and cardiac classes, public schools.

12. Nutritional classes and clinics.

### Public Health Nursing

#### Demonstrations proposed:

13. Child Welfare Nursing.

Pre-natal work, methods of instruction and supervision, at baby health stations, and in homes.

School nursing, special clinics open-air classes, care of children at all ages.

Dict kitchen nursing service.

## 14. Preventable Disease Nursing.

Methods of procedure and system of record-keeping in control of infectious diseases at Branch Registration Offices.

Distriet visiting with nurses to observe technique in families, especially among foreign-born.

## 15. Visiting Nurse Service.

Bedside care and instruction, obstetrical and contagious services, of Henry Street Settlement, Visiting Nurses Association of Brooklyn, and Catholic Nursing Sisters.

## 16. Social Aspects of Nursing.

Association for Improving the Condition of the Poor.

Baby Welfare Association.

Department of Public Welfare, New York City.

Co-operation with private social welfare organizations.

Visiting with social service nurses in homes needing relief or readjustment.

## Socio-Health Activities

## Demonstrations proposed:

17. Community health work of the Association for Improving the Condition of the Poor, Mulberry Community House.

18. East Harlem Health Center, conducted by the New York County Chapter of the American Red Cross. In addition to regular activities, the organization will be studied in respect to co-operation of the neighborhood health agencies.

19. Hospital social service conducted by Bellevue and other large metropolitan hospitals.

20. Tenement House Department, New York City. Methods of handling complaints and violations of the Tenement House Law. Inspection of typical buildings.

## Sanitary Engineering

## Demonstrations proposed:

## 21. Water.

New York City water chlorination plant, largest in the world. Dams, reservoirs, and aqueducts of Croton water system. City Water Works Laboratory.

East Jersey Water Company, filtration plant, Little Falls, N. J.

Haekensaack Water Company, New Milford, N. J.

## 22. Sewage.

Reinsehl-Wurl sewage screening plants, Manhattan and Brooklyn, New York City.

## 23. Streets.

City Street Cleaning Department, model street-cleaning area.

## 24. Garbage.

Newark, N. J., Garbage Disposal Plant.

## Communicable Diseases (including Venereal Diseases)

## Demonstrations proposed:

25. Typical clinics—rabies, typhoid, tuberculosis, etc.

26. Machinery of City Health Department for isolation and quarantine.

27. Tuberculosis and contagious disease hospitals.

28. Diagrammatic representation of model venereal disease clinic.

29. Demonstration of standard diagnostic and treatment methods for venereal disease.

## Laboratories

## Demonstrations proposed:

30. Laboratories of Rockefeller Institute, Bellevue and Mt. Sinai Hospitals.

31. Demonstration of standard methods in roentgenology.

32. Laboratories, City Department of Health.

33. State Department of Health Laboratory, Albany, N. Y.

## Food and Drugs

## Demonstrations proposed:

34. Modes of testing food and drugs, City and Federal laboratories.

35. Methods of milk pasteurization, City Department of Health.

36. City machinery for inspection and supervision of markets.

## Industrial Hygiene

## Demonstrations proposed:

37. Industrial Hygiene work of City Department of Health, including occupational disease clinics.

38. Demonstration of modern safety devices.

39. Medical departments of typical industrial plants of metropolitan district.

# EDITORIAL SECTION

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## HEALTH AND THE WINDOW BAKERY

In their relationships to public health new developments in business stand sometimes in a helpful attitude and sometimes in a harmful one, while occasionally the close attention given to commercial development arrays the previously helpful agency with those that are harmful, and more rarely, vice versa. When the successor to the old soda cracker began its commercial campaign in this country it undertook an important educative work in the introduction of factory-sealed food packages. In doing this it was forwarding, if not initiating, a very important movement in the interests of better health. Transferring from the thousands of retail stores to central well-supervised factories, the process of counting and packing and handling and supplying food products "from factory to you," the sealed package in this and many other specialties, has been a helper towards a bettered health of people. It has put the old-fashioned "cracker barrel" out of business. Health officers all appreciate its benefits and inspectors know how it transfers to comparatively few establishments the supervision that would otherwise of necessity cover thousands of scattered shops and stores.

When Newcomb introduced his foot-tread bubble-fountain, he was taking a step filled with potential benefit. He realized the health advantage to be gained by banishing the "common" drinking cup, and sought the advice of health officers in developing his models.

When the window bakery was devised it became a third agency that is potentially valuable to the public health. It has been able to bring into the light of day and under the conditions admitting of a good deal of public supervision and inspection a business that has been prone to lurk in cellars. A few municipalities

by drastic regulation have been able to have the business conducted properly and in well-lighted places, the master bakers having secured some helpful legislation, but the processes of bread-making in the well-tenanted sections of large cities have left much to be desired. In bringing the preparation of the important food staples that require the oven into places suitable for the work from the sanitary point of view, the window bakery movement is filled with promise.

There is sometimes a fly in the amber. The bubble fountain in its commercial evolution has assumed forms that carry with them the very danger that the principle seeks to avoid. Those who have seen the street urchins playing with the bulb bubblers, thumbing them to spray a fellow urchin or enveloping the whole bulb by the mouth to get the full stream of water, do not need to be told of its possible misuses, while investigators have condemned some forms because, like the jet that maintains in air the colored ball, they toss the dangerous germs aloft, and when the stream subsides carry them to within the bulb to lie in wait for the future patron. For these and other reasons many forms of bubble fountains are condemned by authorities on health. This does not in the least interfere, apparently, with the continued installation of insecure forms that are cheap, or the use of them where they are already in place.

The commercial instinct is now at work on the window bakery. There is a fruitful field for development because the people are always interested in "seeing the wheels go 'round." It is true that they are being established everywhere. In lifting the bakery into broad daylight certain conditions, due to comparative darkness and underground locations, are eliminated. But will new ones arise that require watching? That is the usual course of history. That is a development that health officers need to watch. So long as it is an "oven to customer" procedure, with the "cash and carry system of delivery," the benefits seem clear. But it is not to be forgotten that there is the entry more and more of foreigners into the business of food preparation, foreigners whose fundamental standards of sanitation and personal cleanliness may be much below our own. So long as the window bakery stays in the window it is likely to be well cared for, but there is already the tendency to relegate the machinery to the back room to the possible loss by the public of a measure of security. But the principle of having the people for inspectors is certainly an excellent one.

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### HEALTH EDUCATION OF CHILDREN

From time to time the point of view of the health officer has changed with reference to methods of accomplishing his work. Originally his duties were in the lines of compulsion and much stress has been laid on his police powers. His legal standing is today fundamentally that of obliging his community to observe legal requirements.

In these later days it has been realized that the health education of the people is to be the mainspring of future progress. There is philosophy in this, for the principle is clear that no health officer can for any length of time continue a course of action in which he has not the support of public opinion.

The work of educating the people in health principles is new, and American health organizations, public and private, have undertaken it, each from its own point of view. Health institutes for physicians, lectures for technicians, movies for popular audiences, discourses in foreign languages, automobile demonstrations and a multitude of other efforts have had their place, each addressing itself to a different population factor, much as diversified schools, from primary to post-graduate, cater to the needs of different culture groups. At the present moment attention is focused on the child in a good many departments of public health work. This also is philosophical, for while it would be unfortunate to neglect any of the older age groups, it is true that the future of the world, in health as in other matters, depends upon the child of today. If there is to be built up in our country a firm structure of good health of the people, the children are logically the foundation on which the structure must rest. Health education of children is therefore vital.

In the August issue of the JOURNAL Professor Turner gives variety to the discussion on the health education of children, and, quoting some results, asks whether teaching children about health and their own health should not be a part of the regular school work. The results quoted are those of what may be termed an experiment in the "laboratory method" of teaching health. The laboratory method of teaching, introduced into this country by such schools as the Rose Polytechnic Institute and the Massachusetts Institute of Technology, revolutionized instruction in certain branches and made American technical training the best in the world. It was the method of "teaching young men by making them do things." The latest suggestions in teaching health principles to children involve precisely this idea, that of making the child "do something," namely, care intelligently and interestedly for its own health—in reality a laboratory method that centers about the child.

While Professor Turner's experiments were under way in Massachusetts schools the Child Health Organization was developing a laboratory method in other schools in the country about New York City. Principles have been tested out of making the child a factor in its own health, which seem important.

One feature of the C. H. O. work has been the presentation of health to the children in terms of beauty, strength and joy, avoiding, unless absolutely necessary, all mention of illness or disease. Efforts have been concentrated on the formation of health habits in the child rather than the presentation of academic information about physiology or hygiene.

"In order to teach health effectively to children," writes one who has had a part in this recent experiment, "we must capture the interest and imagination of the child and help him express his new enthusiasm originally and creatively." Interest and imagination are to be excited in various ways, and to this end posters, plays and stories have been found to be valuable stimulants. These means catch the attention of the grown-ups, in whom the impression may be lasting, but in the child the interest is too often ephemeral and the lesson may not be carried long. With children the story or the play or the poster is likely soon to be cast aside.

It has occurred to those working among children that they might be induced to prepare their own material, the poster or the little tale, and the experiment has been tried. The results point to the fact that the thought and inspiration that underlie such productions by the child are most valuable, the knowledge gained by him is most helpful, and the lessons learned while caring for his own health, depicting health principles or telling about them, are most lasting. The child in his own studies of his own health bids fair to be a valuable aid in beginning public health education logically at the time when other educative efforts are also getting under way.

## LETTERS TO THE EDITOR

Editor AMERICAN JOURNAL OF PUBLIC HEALTH:

As a member of the Ithaca Board of Health, I desire to make the following explanation relative to statements in an article by Dr. Haven Emerson and others in the April number of your JOURNAL relative to the milk situation in this city.

In that article it is stated on page 323, "For some reason, not fully understood, the University and city enjoy an exemption from the requirements of the public health law of the state so far as the labeling of grade, date and source of milk is concerned. Bacteriological examination of the milk as delivered is not used to check the quality of the supply."

When the milk code of the state of New York was formulated it was stated by the Health Department that it should be adopted excepting in those cities where they already had a satisfactory system of examining and grading the milk. Ithaca had a system based on the sanitary conditions of production, examination of the cows by a veterinarian and the bacteriological examination of the milk as it is delivered to the consumer. This system was presented to the Health Department and was accepted in lieu of the grading proposed by the code. We desired to continue our work on the basis already established which had been in use since 1907 rather than change to the Health Department system because their standards were designed for the larger cities and Ithaca was already getting a much better grade of milk than was required by the state standards. This fact is shown by the following:

Grade—	1919	1920
Excellent (0-10,000 bac- teria per c.c.).....	43.87%	44.72%
Good (10,000-50,000 bac- teria per c.c.).....	31.70%	27.83%
Fair (50,000-100,000 bac- teria per c.c.).....	7.85%	9.32%
Bad (100,000 or more bac- teria per c.c.).....	16.58%	18.13%

Bacteriological examinations of the milk are made at frequent intervals by a trained bacteriologist appointed by the Board of Health. He reports monthly to the Board of Health the results of these examinations and those producers who have an unfavorable examination are notified, their places in-

spected and unless the conditions are remedied the milk is excluded from the market. A competent veterinarian regularly inspects the farms and requires the elimination of any insanitary conditions of production. All cows are subject to careful physical examination and animals showing disease are removed at once. The veterinary inspector makes his reports regularly to the Board of Health.

At the present time, Prof. H. A. Ruehe, Professor of Dairying at the University of Illinois, is doing some special work at this University. He is living here with his family and voluntarily made the appended statement concerning the milk supply of Ithaca:

"If the milk which I am being furnished is a fair example of the quality of the milk which is being distributed in this city—and I believe that it is—all I have to say is that it is unusually good. When unpasteurized, unadulterated milk will keep sweet in the home for two and even three days under ordinary household conditions, there is only one conclusion to draw, and that is that the milk has been produced and handled with great care.

"I should like to say further that I believe the local Board of Health has gone after the milk question of this city in a conscientious manner; and that with their sensible, workable plan have been obtaining results that are to be commended."

DR. V. A. MOORE,

Dean N. Y. State Veterinary College, Cornell University, Ithaca, N. Y.



### TESTIMONIAL

A testimonial to the Health Employment Bureau comes to the JOURNAL from Dr. L. J. Roper, Director of Health of Portsmouth, Va., who writes:

"In answer to my advertisement for a Chief Food Inspector, which appeared in the June number of the JOURNAL, I have had numerous applications from all over the country. As a result of our advertising I have been able to select, out of all the applications, the best man for the position. Your JOURNAL, as a medium for the selection of personnel for health organizations, is unsurpassed."

# BOOKS AND REPORTS REVIEWED

**Infectious Diseases.** *Claude Buchanan Ker, M. D.* London: *Henry Frowde, Oxford University Press*, 1920. *Second Edition.* Pp. 627.

The first edition of this book, published about ten years ago, was the best work on the subject that had appeared. The reviewer recently saw a copy in a prominent contagious hospital which had been worn to tatters by the internes (and the superintendent, too). The second edition maintains its primacy. Prof. Ker, the superintendent of the Edinburgh City Hospital for Contagious Diseases, loves to observe and to record and is also a good teacher. His book, more than most books, is based upon his own experience which has been very extensive, but he has not hesitated to add to his own knowledge from that of others. His work is in every way up to date.

Prof. Ker is especially valuable in his discussion of symptoms, complications, sequelæ, diagnosis and treatment, but the sections on etiology, prevention and hospital management are entirely modern, sane and reliable. The diseases considered are measles, rubella, scarlet fever, smallpox, vaccinia, chickenpox, typhus fever, enteric fever, diphtheria, erysipelas, whooping cough, mumps and cerebro-spinal meningitis, a rather wider range of diseases than commonly comes under the observation of an American hospital superintendent. No person who has much to do with the diagnosis or treatment of these diseases can afford to be without this book.

✦

**The Principles of Ante-Natal and Post-Natal Child Physiology.** *W. M. Feldman, M.B., Assistant Physician, Infants Hospital, London.* New York: *Longmans, Green and Co.*, 1920. Pp. 694. Price, \$10.50 net.

Those interested in physiology in general and child physiology in particular will welcome the appearance of Dr. Feldman's book. The author tells us that he has spent several years in bringing together in a single monograph all the investigations up to date concerning problems of child life from the

germinal period up to adolescence. In this task he has consulted the researches conducted by Russians, Germans, Austrians, Frenchmen, Americans and Italians. It is difficult to think of any phase of physiology which the author has not touched upon in some detail. He has given a considerable amount of attention to the application of the principles of physics and physical chemistry to the study of physiological problems and this has rendered the use of a little mathematics necessary. The various mathematical problems are worked out step by step and the whole train of thought can thus be followed intelligently.

The first part of the book deals with antenatal physiology starting from the germinal cells and then the physiology of conception and the nature of the hereditary processes are discussed. The second part of the book is devoted to the post-conceptual or intra-uterine stage of development of the foetus. This part deals with the mechanics of development, the nutrition of the embryo and foetus, fetal respiration and circulation, fetal secretions and excretions, and the fetal muscular and nervous systems and the sense organs. In the third part of the book the post-natal stage is discussed and the various systems and organs of the child are treated in detail. There are about a thousand references and an excellent author's index.

Students of the modern public health movement have noted that we have passed through two stages of development, the first or stage of sanitation and the second or stage of the infectious diseases. The day is near at hand when great advance in public health will have to be made along lines of personal hygiene, that is the stage of physiology. For that day this book is a valuable preparation particularly for those interested in the welfare of children and in the problems of maternity. It should stimulate all physiologists, obstetricians, pediatricists, and it should be in the hands of all interested in the problems of child life. It is exceedingly well written and contains a wealth of valuable information.

D. GREENE, M. D.

**The Health of the Industrial Worker.**  
*Edgar L. Collis, M. D., and Major Greenwood, M. R. C. P., London and Philadelphia: P. Blakiston's Son and Company.*

In studying the pages of this book one feels himself elevated to a new plane from which a clearer vision is obtained of industrial health problems, the proper solution of which in no small way affects the welfare and happiness of man. The combined experience of the authors, ripened by their intimate contact with the great industrial problems of the war, ably fits them, as pointed out by Sir George Newman in his introduction to the volume, to lay "something of a new foundation of the science and art of preventive medicine as applied to the industrial worker."

The first two chapters, dealing with the evolution and progress of industry and industrial hygiene from their early beginnings in England, form a necessary background to a proper appreciation of the subject matter which follows. The work completely avoids a discussion of the so-called dangerous trades and occupational diseases, dealing rather with the great problems of human wastage existing in all industry due to ignorance and neglect of the physiological principles applicable to efficient production.

Every one of the 18 chapters dips far beneath the surface in a search for the truths best suited to guide the physician and the industrial administrator.

Unique are the observations of the authors with regard to tuberculosis among males and females in relation to the factory and the home, and to rural and urban life. The chapters on Fatigue, Cancer, Cause and Prevention of Accidents, Food at the Factory and Feeding the Industrial Worker, Ventilation, Lighting, Sanitary Accommodations, Supervision of Industrial Health, and Industrial Employment of Women, average not more than 25 pages each and present a careful and clear analysis of the subjects in the light of the more recent knowledge and experience.

The industrial physician must needs measure the problems of human wastage or labor turnover in industry, just as the health officer in his work must be guided by community wastage as measured in terms of vital statistics. The authors deal

simply but thoroughly with the vital statistics of industry, adhering entirely to arithmetical methods. Some of the fallacies besetting attempts to compare by statistical methods the relative healthfulness of different pursuits are well set forth in Chapter III. This is specially true in the use of longevity as a factor of comparison.

Every industrial physician is daily presented with opportunities to practice the rather new art of rehabilitation of the disabled employe. Chapter XVIII discusses the reclamation of those disabled by accident and by disease, describing methods best adapted for the treatment of many troublesome conditions met with among industrial workers.

To every chapter is appended a bibliography, chiefly of English authors, and to the completed work, comprising 437 pages, is added an ample index. Altogether, the work is well gotten up and easy to read, the chapters being provided with frequent subheadings and the subject matter occasionally emphasized by the use of italics.

Notwithstanding the general excellence of this work, one looks in vain for some method of convincing the industrial worker of his needs in the matter of personal hygiene. Perhaps we should not expect to go very far in the education of the adult worker in health matters and should rather rely principally on the education of his children in the schools.

E. B. STARR, M. D.

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**Sanitation for Public Health Nurses.**  
*Hibbert Winslow Hill, M. D. New York: The Macmillan Company. Pp. 211. Price, \$1.35.*

This is a valuable addition to the series of text books on public health nursing issued by these publishers.

Dr. Hill is already known to public health nurses through his first book, *The New Public Health*. The simplicity and directness of his style, together with very picturesque illustrations have made this a popular volume with public health nurses, and one to which they constantly refer.

To define public health as "all that mankind may do to advance the physical welfare of any of mankind," opens so wide a door to the imagination in considering organization of community health work that



the attention is arrested at the opening sentences of Dr. Hill's new book.

The Chapter on Typhoid Fever (Chapter III); the Chapter on Vital Statistics (Chapter XVI); and that on Immunity (Chapter VIII) particularly, attract the interest of public health nurses. In his picturesque treatment of Vital Statistics, Dr. Hill has personified the dull figures vividly, and has given most valuable suggestions as to methods of transforming these figures into publicity material of the kind that will attract the multitude and focus attention on the lessons in health to be learned from them.

We are learning daily that health teaching in the homes is the only proper method of attacking the great problems of infant mortality, tuberculosis, mal-nutrition, and communicable diseases. In every chapter Dr. Hill's book is suggestive of more effective methods of bringing to each family the knowledge necessary to secure community health, because we are learning that it is upon the general health standard of the family that success in any specialty will depend.

MARY BEARD, R. N.



#### Collection and Disposal of Municipal Refuse.

*Rudolph Hering and Samuel Greeley. New York: McGraw-Hill Book Co. 1921. Pp. 653. Price, \$7.00.*

Sanitary engineers and municipal officials will welcome this long-expected book on the collection and disposal of municipal refuse. In their preface the authors state that the work has been in hand for ten years, but Mr. Hering's experience in refuse disposal covers a much longer time. The book differs from other books on the subject in that it is more comprehensive, better arranged, and better balanced. It is especially strong in its cost data, and while many of the figures given cannot be applied to the present changing cost conditions, they are of much value for comparative purposes, since the authors have endeavored to put them on a uniform basis. The book is also strong in its presentation of unit data concerning the quantities of refuse of different kinds.

The authors emphasize the important factor of refuse collection and show how it is intimately linked up with that of final dis-

posal. Too often the collection and disposal of refuse are treated as if they were separate problems, collection being put first and disposal second. As a matter of fact, it is more logical to decide first what the method of ultimate disposal is to be and then adapt the methods of collection to it.

The book is so long and the tables of data are so numerous that the authors have done well to place a paragraph of "summary and conclusions" at the end of each chapter. In discussing the selection of methods of disposal, they base their preference on three general principles,—sanitation; economy, and expediency. From the point of view of sanitation, first place is given to incineration, followed by reduction, hog-feeding at specially arranged farms, shallow burial in the ground, and dumping at sea or on land. In computing costs, they take into account six items of expense,—(1) cost of collection, (2) interest on cost of works and equipment, (3) depreciation, (4) repairs, (5) cost of receiving, treating, removing or selling the produced materials, and (6) administration, taxes, legal expenses and services. The receipts include (1) appropriation of funds by city or individuals, (2) proceeds from sale of pickings, (3) proceeds from sale of products. The requirement of expediency "must be left entirely to the judgment of the local governing bodies, after they have carefully weighed the questions of sanitation and cost, which should be considered mainly in the light of tendencies toward possible changes in local and cost elements."

Viewing the book as a whole, it may be fairly said that the book will take its place as the leading compendium of American practice in refuse disposal.

GEORGE C. WHIPPLE.



**International Journal of Gastro-Enterology.** A. L. Soresi, Editor, 220 West 59th Street, New York City.

The *International Journal of Gastro-Enterology* is a newcomer into the field of medical publications in this country, its first issue bearing the date of July, 1921.

It starts out with a group of original communications, a department of experimental medicine, reports of interesting cases, preliminary notes and other general

divisions of its special subject. It is profusely illustrated.

It presents two interesting comparative novelties, one, the addition to the customary summaries to papers of commentaries on the articles by various authorities including the Editor, and abstracts of them in English and in foreign languages for more general use than the technical readers to whom the detailed articles are addressed. The other is an article in Italian by Professor Mario Ponzio on "X-Ray Diagnosis" which concludes the group of original communications and of this there is an abstract in English. This is in keeping with the "International" character of the magazine. Some abstracts from the literature follow and an outlining of the program of the Journal.

In calling attention to the commentaries following the principal articles, the Editor speaks of some of his difficulties. These commentaries are secured by sending the papers that have been accepted for publication to men considered to be qualified to comment upon them, and they are received by them as practically anonymous so that the commentaries should be unbiased and based solely on the merits of the papers. This seems to be a new departure in medical work, although quite usual in a measure with scientific and engineering association journals. Dr. Soresi's difficulties in obtaining commentaries are certainly of interest. Some of the authorities to whom papers were submitted returned them with notes that were not altogether agreeable, some doubtless considering the service an imposition, while a number of contributors asked to have their manuscripts returned, because they did not wish the papers criticised in this way. A procedure like this must, of course, tend to a high quality of communications, since if an author realizes that what he is writing is to be discussed at once by other authorities, he will probably exercise more care in the preparation and presentation of his own material. It is evident from the program that the intention is to present papers

and abstracts in French, German, Italian, and Spanish.

The Journal accepts only unpublished, original papers, and intends to include only fully developed ideas. The communications which are, however, so to speak reports of progress, or which do not fully develop the ideas expressed by the authors will be published under the head of Preliminary Notes.

It is, of course, too early to discuss the value of the magazine, but the beginning is certainly suggestive of seriousness and a desire to fill a special place in medical literature.

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*The Sex Factor in Human Life.* By T. W. Galloway. New York: American Social Hygiene Association, 1921. Pp. 142. Price, \$1.25.

Dr. Galloway's book is designed specifically as a means of educating those who are to be leaders, club leaders, "Big Brothers," college students, young men who naturally will come in contact with and influence many. It aims to qualify these men for moral leadership by equipping them with thorough, wholesome, essential facts concerning sex as a factor in human life. To this end the author has utilized every means to make his book interesting, concrete, informational, and practical. The question and answer method is used throughout. This method succeeds frequently in making an abstract subject concise and concrete.

Aside from giving discussions on the sex instinct, its control through sublimation; marriage, democracy and the home; sex and religion; Dr. Galloway discusses some popular misconceptions about sex. This topic is particularly useful because it touches upon the fallacies which have evolved through generations of ignorance and prudery, fallacies which youths are often persuaded to believe because of the general ignorance of the subject.

For the most part the book meets with requirements of intelligent young men, and is one which should attain great popularity among them.—(A. N. T.)

# ASSOCIATION NEWS

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Wanted: An assistant in medical bacteriology at medical school. Will also have to do routine diagnostic work, Wassermanns, blood typing, etc. Salary, \$2,000 to \$2,500. Address Dr. M. P. Ravenel, University of Missouri, Columbia, Mo., giving age, training, experience, etc.

# EMPLOYMENT BUREAU

## HELP WANTED

Help wanted announcements will be carried free in this column until further notice. Copy goes to the printer on the 10th of each month for publication on the 20th. Mail to Boston office as early as possible.

In answering keyed advertisements, please mail replies separately to editorial office in Boston, Mass. In replying give age, professional training, salary requirements, previous positions held and three or more references.

**Wanted:** Chief of the Division of Communicable Diseases and Sanitations, under the title of State Epidemiologist. Salary, \$3,300 a year.

Chief of the Division of Child Hygiene. Salary, \$2,500 a year.

Three full-time Health Officers. Minimum salary, \$3,000 a year.

Applications for these positions should be made, stating training, experience and giving references. Address, Executive Officer, Kansas State Board of Health, Topeka, Kansas.

**Wanted:** A progressive superintendent of health for a city of 60,000 population. Salary \$3,500. Must be an M. D., a man of experience and able executive. Apply to Chairman Board of Health, New Britain, Conn.

## POSITION WANTED

Positions wanted announcements will henceforth be carried in this column. The charge is \$2 per insertion. Copy should be received at this office by the 10th of the month.

Physician at present holding a position on the staff of a State Department of Health, desires to make a change and secure an appointment as full-time City or County Health Officer, Central or Western state preferred. Graduate of standard university and experienced in both administrative and field public health work. Address 175, B. C. E., care of this JOURNAL, New York address.

**Wanted:** Physician of mature years, and wide experience, excellent executive and good business man, wishes position as Superintendent of Health in large or middle-sized Northern or Western city, with well organized and equipped department. Sal-

ary not less than \$3,600. Best professional and business references. Address 176, G. M. R., care of this JOURNAL, New York address.

**Wanted:** Administrative position with state or city health department desired by public health expert with more than a dozen years' experience in administrative and consulting capacity. Reference furnished by leading health authorities of the country. Address 177, W. H. C., care of this JOURNAL, New York address.

**Wanted:** Bacteriologist desires position as director of a city laboratory; woman; B. S. degree; seven years' experience in hospital, state and city laboratories (two as Director of City Laboratory); trained in general bacteriology, including milk and water; serology; clinical pathology, and some blood chemistry. Public Health work preferred, but a hospital position considered. Address 178, S. P. M., care of this JOURNAL, New York address.

**Wanted:** Bacteriologist, holding B. S. from leading Middle Western university and with several years' experience in public health laboratory work in South, desires change. Capable of directing and handling all phases of public health laboratory work, clinical microscopic diagnosis and serology. One year in charge of city and county laboratory. At present Assistant Director in large Southern city. Address 179, M. G. R., care of this JOURNAL, New York address.

**Wanted:** Bacteriologist and Chemist wants position as bacteriologist. 15 years' experience as Public Health bacteriologist, State and Municipal. Have had the directing and handling of all phases of laboratory work. At present on the faculty of a university in New York City, and now doing research with the gonococcus and complement fixation work. Free by the end of October. Address 180, B. T. G., care of this JOURNAL, New York address.

**Wanted:** Position as a full-time health officer of city, city-county, or with a state department of health. Have had five years' experience as a health officer. References and detailed information as to previous work will be furnished. Address 181, H. C. E., care of this JOURNAL, New York address.

# PUBLIC HEALTH NOTES

Abstracts by D. GREENE, M. D., M. P. HORWOOD, Ph.D., JAMES A. TOBEY and HOMER N. CALVER.

**Prophylaxis of Syphilis With Arsphenamine.**—During the last six months, about 30 patients have undergone the prophylactic treatment with arsphenamine. Most of them were selected by making a diagnosis of active syphilis in the opposing partner. The prophylactic doses averaged 0.3 grams of arsphenamine and the number and intervals of injections varied with the time since the first exposure, from no less than three doses to one case to six doses. The six doses are being applied to a woman whose husband came under observation with the eruption of secondary syphilis and a history of chancre for six weeks. It is the purpose of the doctors to treat this woman as a Wassermann negative primary syphilitic and prevent the symptoms of the generalization of the disease. There is no consistency as to the interval of injections, varying from one every other day to one every five days, depending upon the physical condition of the patient. The women had the longer interval in the great majority of the cases.

The patients have been under observation long enough to state that the primary incubation time passes without the appearance of the primary lesion. No patient has developed a positive Wassermann reaction, although it was not possible to repeat the tests in all of the patients.

Both French and German literature have reports, several of which antedate this work. No claim of priority is made, and additions to this bibliography are welcome.

Stühmer was the first to advocate the institution of specific therapy in cases of suspicious genital lesions. Taegge proposes the use of arsphenamine during the incubation period. Fournier and Guenot report the abortion of syphilis by arsphenamine used during the incubation period. Lacapere and Laurent made some interesting observations which show that prophylaxis with arsphenamine is effective.

As far as Drs. Michel and Goodman can ascertain, there are no reports of the failure of arsphenamine to prevent syphilis, when injected during the incubation period of the disease.—Leo L. Michel, M.D., and Herman Goodman, M.D., *Jour. A. M. A.*, Dec. 25, 1920. (A. N. T.)

**Broader Aspects of the Tuberculosis Problem.**—Most people believe today that tuberculous infection takes place in infancy or early childhood, and that the disease becomes apparent later in life, when the vital resistance of the body is reduced. There are two schools of thought which attempt to explain this breakdown of the individual mechanism. The eugenists believe that the race stock or protoplasm of the individual is the chief contributing factor, and point to the high tuberculosis death rates among the Irish and Negroes as proof of their contention. Another group believes that the breakdown is due to the lack of adequate food, not only in amount, but in kinds of food in the diet. There is still another group that maintains that the environment plays a very important part in this matter. Such factors as poor housing, overcrowding, unsatisfactory conditions of employment, long hours of labor, fatigue, poor wages, lack of recreation, imperfect and inadequate school hygiene and public health education, previous communicable diseases, a milk supply obtained from tuberculous cattle,—all of these may have a very important relationship to the prevalence of tuberculosis. If that is so, then every movement to improve the general conditions of hygiene and sanitation in the community aids directly in the suppression of tuberculosis.—Philip P. Jacobs, Ph. D., *New Jersey Public Health News*, April, 1921. (M. P. H.)



**Ideal of Health.**—The creation of an ideal of health is the only effective way in which to interest children in their own health habits. Instead of talking to the little ones about the bad cold that will result from some indiscretion, or the pain that will result from overeating or the wrong kinds of food, we must give the message of building a strong and beautiful body. We must build in the children's minds a picture of the mystery and wonder of the body, showing the effect on its workings of such processes as sleep, exercise and the habits of diet.—Sally Lucas Jean, *Public Health Nurse*, May 1921. (M. B. D.)

**Dental Hygiene in Japan.**—A pamphlet on "Dental Public Service in Japan; Its Present Condition," by Dr. Tamejiro Kawakami, Professor of the Tokyo Dental College, presents a very interesting report of the progress being made in the Oral Hygiene Movement there. The Dental Societies Association of Japan representing about 65 other dental societies is making a detailed study of this movement. Oral inspection of school children in certain cities show that 90 per cent of Japan's school children have decayed teeth. Oral Hygiene Exhibitions are growing very popular, the Dental Societies Association having provided 45 different models and 65 types of pictures and charts for this purpose.

Oral Hygiene Day held in Tokyo November 5, 1920, for the first time proved to be very successful.

Nine motor cars were assigned to different parts of the city to spread oral hygiene propaganda. In each of these cars a dentist accompanied by a pressman and a city official delivered speeches at all of the important street corners. The machines flew "flags of precaution against decayed teeth" and 500 dental students distributed handbills and small flags on dental hygiene propaganda.

It is estimated that nearly one out of every ten of Tokyo's 2,173,162 inhabitants was presented with either a handbill or a flag. This movement against decayed teeth was extensive and the results were very effective.

There are 6,409 licensed dentists in Japan or six times the number that there were in 1907. An average of six hundred dentists are graduated every year.—*Dental Hygiene News*, May, 1921.



**Enlightening the Public.**—The basis of the modern fight against tuberculosis is enlightenment, instruction and education of the public. This is carried on mostly by pamphlets and printed rules. Usually the patients read and understand them either imperfectly or not at all. The author proved this by giving the patients verbal orders to bring in specimens of sputum and urine with the result that almost everyone complied with the order. To another group of patients he handed pamphlets in which he enclosed slips on which were printed the same directions. The results were less good. The third experiment in which he

printed the same directions inconspicuously on the second page of the pamphlet had the result that practically all the patients failed to bring in the specimens. He therefore places little value on printed matter and tries to carry on all education and instruction verbally. Special informatory and advisory office hours were instituted at the *Fürsorgestelle*. Special lectures are given with open discussions and practical demonstrations. They are so well attended that it has become necessary to hold them in a larger hall. There will always be people who can learn from printed directions, but the great mass of the people will follow verbal instructions better.—*Besorchner, Abstract in Amer. Rev. of Tub.*, March, 1921, 1.—(D. G.)



**Future of Medical Practice.**—Profound changes in the relation between the medical profession and the state have created a necessity for the state and the profession to come to a realization of the principles which should govern their interrelation.

What seems to be needed in the abstract, is first a single unit of health government with necessary subcommittees for particular purposes. This would involve the following principles: one authority in each area to be responsible for all administration of health services from local rates; the absorption of the work of the Poor Law in a public health service; and the unification of the local authority of all public medical provision for the sick and infirm of all ages. Second, a *uniformity of administration* is necessary; and third, there is a principle which the profession must not forget—that the local unit of health government must be *representative* of the will of all the people as a whole.

Moreover, there is a need of a national policy, dealing with the medical problems of maternity, infancy, childhood, adolescence, adult life, and old age; with the prevention and cure of non-infectious as well as infectious diseases; with the education of the public in hygiene. Then, too, there is a need to bring together in proper relationship the provision of proper medical treatment in the home, clinic, hospital, and convalescent institution for the whole society.

Next, there is the question of hospital position. Where should hospitals be situated, how financed? What can be done to reorganize after-care and the proper con-

valescent treatment of the patient? These require medical and lay judgment and experience.

Finally, perhaps most important of all, is the need of an adequate method of medical education which shall equip the undergraduate and the practitioner. The doctor must not only retain the skill of former days, but he must also be furnished with an improved training in new subjects, in preventive medicine, and in political science of communal responsibility. The further education of the practitioner must include adequate professoriate, hospital, and laboratory accommodation and organization.

From the point of view of "medical sociology," the doctor must be the missionary of hygiene. He must disseminate knowledge of sobriety, cleanness of living, the prevalence of venereal diseases, of prostitution, the causes of certain crimes, the integrity of family life; and also the cultivation of international science, coöperation, and amity.

Dr. Newman concludes with the following statement:

"... The profession is responsible for its own contribution—a contribution which consists partly in a correct diagnosis of its own disabilities and the conflicting and prejudicial tendencies within its own body, partly in a fuller understanding of the needs of the state, and partly in readiness to make itself thoroughly well equipped and competent to render the remarkable public service which in this generation has fallen to its lot."—Sir George Newman, *London Lancet*, July 17, 1920.



**Five Years of Sanitary Progress Against Typhoid in West Virginia.**—The Division of Sanitary Engineering of the West Virginia State Department of Health has issued an attractive 36-page pamphlet outlining its five years of effort in coping with typhoid. Nineteen water-borne epidemics of typhoid are described. They are divided into four classes, (1) those due to the use of raw, untreated river water for drinking purposes; (2) those due to unsafe water on account of inadequate filtration of the river water; (3) those due to infected wells; and (4) those due to the interruption of chlorination of the water supply. Nine epidemics fall in the

first class and three in each of the others. A description of each epidemic and how it was controlled is given. A number of striking charts are included and several tables show the cost of typhoid to the citizens of the various communities. It is stated that in Wheeling alone the toll in lives and money needlessly spent was more than \$1,350,000 in the period 1910-1920. The total loss due to the 19 epidemics, exclusive of Wheeling, is estimated at nearly half a million dollars. This figure is used as an argument for a suitable appropriation for the work of the division. The work of this progressive division in West Virginia, of which Mr. E. S. Tisdale is Director, well illustrates the necessity for a division of sanitary engineering in every state. There is no more important bureau in a state health department.—(*J. A. T.*)



**Preventive Dentistry for Infants.**—Preventive dentistry should be practiced upon first appearance of the deciduous or baby teeth and continued throughout life. With a soft napkin on the finger, moistened in fresh or salt water, the infant's teeth and gums should be carefully cleansed several times daily. This, while of benefit to the teeth and gums, also accustoms the child to dental manipulations, and if continued, will establish the dental toilet as a routine part of the personal hygiene of youth. As soon as the child has erupted the baby molars, the dentist should be visited for a thorough inspection of the teeth. At this time painless methods of treatment may be sufficient to prevent or arrest tooth decay. A psychic factor not to be slighted is that the dentist should not be mentioned in the presence of the child as one to be visited with dread. Experiences dealing with the pain and discomforts of the dental chair should not be related in the hearing of the little patient. This has a definite plausible relation to preventive dentistry, for dental operations involving pain may be escaped if skillful dental attention is promptly and regularly administered during and after infancy. However, the majority of individuals have not selected parents who are mentally and financially equipped for the proper fulfillment of dental care during infancy and childhood.—*Indiana Monthly Health Bulletin*, Jan., 1921. (*J. A. T.*)

Immunity and Tuberculosis.—We can count from memory at least three new anti-serums and four new tuberculosis vaccines which have come to our notice since the war ended—most of them with the blast of trumpets in the daily press—and a reference to contemporary medical journals would reveal a considerable addition to the number. There is also a chapter of immunology just opening, with accounts of the protective powers of certain special types of proto-plasms against the tubercle bacillus. Witness the almost supernatural accounts of recent experiments with the caterpillar and the snail in destroying the inoculated tubercle bacillus. These accounts recall the early records of Richet's experiments on the sea anemone and anaphylaxis when immunologists paused in wonderment. And the results may not be dissimilar—fascinating and yet disappointing in their application to man. It is essential, therefore, that if we strive for the mastery over the tubercle bacillus we strive by right methods. The late Sir Michael Foster once said that the physiologist should exercise his imagination to the full outside laboratory, and should forthwith eschew it when he reached his bench. This warning is probably more needed now than at any time since Darwin first preached evolution. It has also been said that when the bacteriologist suffers from nightmare he is haunted in his dreams by a hideous row of control experiments which he has neglected to perform. We could almost find it in our hearts to wish that some men suffered from this nightmare a little oftener. Failure to control experiments is a serious mental aberration on the part of the bacteriologist, and when the clinician turns bacteriologist he is particularly liable to this form of mental disorder. How many valueless tests have been made in the study of tuberculosis, and how many wrong conclusions drawn by failure to make controls with the normal? We need to control the virulence and purity of our cultures, the toxicity of our media, and a hundred other factors; and when we come to use anti-serums there is a whole new field of control research awaiting us on the influence of normal serum on immune bodies and on pyrexia and metabolic processes generally, which at present we have barely visualized. Nor are these the only factors. The physician, if he be honest with himself in testing

a tuberculosis vaccine or antiserum, must make controls as to dosage and auto-inoculation; he must compare the normal individual with the abnormal. In the ideal experiment there is only one variable factor, the one on which we are at the moment researching; all else is stabilized. These are conditions we should aim at. Here especially is the clinician's pitfall, because it is hard to equalize things by the bedside. And the climax of research is reached in those statistical results known as "cures" which beset the path of every worker. No phase of work is more readily misinterpreted. A little difference in the method of choosing cases, a little carelessness in following up our results, a little variation in the "end-point" of a clinical reaction which is rarely as clearly defined as a titration in volumetric analysis, a little undue optimism about that fatal phrase "quiescent lesion," and it is all up with our statistics. The penalty is paid by the patients. One moral is to pay a vast deal more respect to the accurate meaning of the word specific. Having exalted the term to a special place in the vocabulary of immunity, let us not prostitute it to the use of every new and untried remedy in vaccine and serum therapy.—Editorial Comment, *Lancet*, April 2, 1921, 712.—(D. G.)

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Passaic Valley Sewage Decision Against New York.—On May 2, the United States Supreme Court unanimously denied the application of the State of New York for an injunction against the discharge of sewage from the Passaic Valley Sewerage District into New York bay. The decision ends litigation begun more than twelve years ago. The State of New York maintained that the discharge of Passaic Valley sewage would create a public nuisance by causing offensive odors, or unsightly deposits on the surface of the harbor waters, or that it would seriously add to the pollution of the bay. The Court maintains that this was not proven. It also pointed out that New York City is discharging much more sewage than the Passaic Valley section, and that during the period between 1906 and 1919, the increase in population of New York City was approximately equal to the total population of the Passaic Valley Sewerage District. The decision also recognizes the dissolved oxygen content of



waters as the standard for measuring the degree of pollution, and also that sewage disposal by dilution is the legitimate method of sewage treatment. The decision of the Supreme Court is undoubtedly the most important opinion on sewage disposal since the famous Chicago Drainage Canal Case.—*Engineering News-Record*, May 19, 1921. (M. P. H.)



**Contaminated Hands and Objects in the Spread of Disease.**—The pathogenic bacteria present in the secretions of diphtheria and scarlet fever may be cultivated from the surroundings of the patients, but in the former disease less often than in the latter. Improperly sterilized eating utensils may readily serve as carriers of infectious material. The thorough washing of the hands with soap and warm running water efficiently removes the secretions with which the hands may become contaminated. To facilitate this, the skin of the hands and nails requires special care in order to insure a smooth healthy surface and freedom from any local condition which may render thorough cleaning difficult or impossible.

Gauze masks protect the faces of nurses from gross contamination with particles of air-borne secretions. Cultures from the hands of attendants are a useful check on the individual technic of those caring for contagious diseases. Cultural studies of the surroundings of patients with contagious diseases may serve to indicate the efficiency of the technic employed, and if applied at intervals they seem to stimulate attendants to greater efforts toward perfection.—W. J. Matousek, *Jour. A. M. A.*, May 28, 1921, 1490. (D. G.)



**Experiments in Epidemiology.**—At the last annual meeting of the Association of American Physicians, Flexner and Amoss reported some experiments in epidemiology. These studies consisted of artificial control of epizootic outbreaks. The organism used was *B. typhi-murium*. The mice were assembled to represent a village. One hundred-normal mice free from *B. typhi-murium*, were put in twenty cages. Ten mice were then fed a heavy suspension of the organism, and were put among the hundred normals. Roaches and

flies were eliminated. Eight of the ten infected mice came down, and seven of the normal mice, by contact. After thirty days, another series of mice was brought in. The epidemic progressed in a series of waves, the crests of which became smaller. Among the first mice exposed the deaths were higher and more frequent than among the others. After two weeks there were no more deaths. The mortality now was 68%; originally it was 58%. They were again restocked, and the mortality now was 14%. It was supposed that greater mortality would occur among new arrivals, but it was about the same among old and new. The number of carriers was found to be in inverse proportions to the death rate—the higher the death rate, the fewer the carriers. The carriers had agglutinins in the blood, but these were not protective against a new epidemic wave. The strains of organisms had different virulence at different heights of the disease.—*Jour. A. M. A.*, May 28, 1921, 1525. (D. G.)



**Cobwebs vs. Quinine.**—For 1,500 years the peasants of the Pontine district of Italy, near Rome, have been trying to cure malaria with pills whose principal ingredient is cobwebs. Needless to say, they have not succeeded very well, and as a result fever takes a startling toll of lives every year in this unhealthy region.

Recently, however, the Junior Red Cross of America, through its three orphanages, has introduced the miracles of quinine among these people, who are direct descendants of the Sabines and retain many of their pagan customs. Cobweb pills have, therefore, lost some of their prestige in face of the cures which have been made, and offerings to the fever goddess, which formed a sort of secondary treatment, are going out of style.

The Pontine region is one of the most unhealthy in Italy. Most of the women have been widowed two and often three times by malaria, this curious state of affairs being accounted for by the community law which forbids the women to leave the high and dry places where the villages are built to accompany their husbands who go to their daily labor in the fever filled valleys.

## STATE HEALTH NOTES— LEGISLATION

*National. Congressional Procedure.*—From report of National Health Council indicating action up to July 7, 1921.

### NEW LEGISLATION

S. 1084. National budget. Introduced by Senator McCormick, April 25, 1921, and was passed by the Senate and the House, the latter on May 5. The conference report was finally agreed to in the Senate on May 26 and in the House the following day. The President appointed Brigadier General Charles G. Dawes as Director of the Budget.

General Dawes called a meeting of all government bureau heads on June 29, 1921. The President, Vice-President, Cabinet members, members of the Smoot-Reavis Committee and General Sawyer also attended. After a brief address by the President, in which he stated that the Administration was committed to a policy of economy and efficiency in government, General Dawes spoke for about an hour and explained the plans of his bureau. The Bureau of the Budget will proceed at once to gather information concerning government expenditures. Each department will name a budget representative who will present to the director the views of the cabinet head upon the conclusions drawn by the Director of the Budget. The Bureau of the Budget will work in close coöperation with the Smoot-Reavis Joint Committee on Reorganization and also with the Congressional Committee on Reclassification. A budget for the fiscal year 1922 is to be drawn up and the plan is to attempt to reduce expenditures and hold the departments to the budget figures, regardless of Congressional appropriations. It is, therefore, likely that appropriations for health work will be among those reduced. General Dawes has also issued an order that heads of executive departments shall make an immediate survey of all supplies on hand.

H. R. 7365. For the construction of a hospital at Galveston, Tex. Introduced by Mr. Briggs on June 24, 1921. Referred to Committee on Public Buildings and Grounds. This bill provides for the construction of a hospital to cost \$400,000 for the care and treatment of patients of the U. S. P. H. Service.

H. R. 7369. Makes illegal the pollution

of navigable waters of the United States by oil and other refuse matter. Introduced by Mr. Appleby of New Jersey, June 24, 1921. Referred to Committee on Rivers and Harbors. This bill makes it unlawful for any person or any corporation, specifically mentioning shipowners and shipowning companies, to throw, discharge or deposit any oils or refuse, other than that flowing from streets and sewers, into any navigable waters of the United States. A penalty is provided.

H. R. 7459. Levies tax on condensed, evaporated or concentrated milk. Introduced by Mr. Fordney of Michigan, June 29. Referred to Committee on Ways and Means. This measure imposes a special tax of \$1,500 per year for each and every factory manufacturing condensed, evaporated or concentrated milk. It also levies a tax of \$750 on every wholesaler selling or handling this product and a tax of \$12 on every retailer. A penalty is fixed for failure to pay tax.

H. R. 7541. Commissioned status for sanitary engineers in United States Public Health Service. Introduced by Mr. Sweet of Iowa on July 1. Referred to Committee on Interstate and Foreign Commerce. This bill gives sanitary engineers of the U. S. P. H. Service the rank, pay, emoluments and privileges of the commissioned medical personnel. It also stipulated that no additional appointments as commissioned sanitary engineers shall be made except after the applicant has passed examination before a board of officers.

A Division of Welfare has been created by Postmaster General W. H. Hays in the Postoffice Department. On June 27 he announced the appointment of Dr. Lee K. Frankel, a Vice-President of the Metropolitan Life Insurance Company, Vice-Chairman of the National Health Council and formerly President of the American Public Health Association, to the position of Director of the Postal Service Welfare Department. Dr. Frankel accepted the position and began his duties at once. He serves without pay.

It is reported that one of the lines of betterment by Dr. Frankel will be an effort to improve sanitary conditions in the post-offices in every city and town in the country. A thorough study of health and medical conditions among employees is being

made. The first step in the welfare work was an order issued through Dr. Hubert Work, first assistant postmaster general, who is also ex-President of the American Medical Association, which reads as follows:

"At the request of the Treasury Department all postmasters who are appointed by that department as custodians are notified that they are expected to render efficient service in that capacity and see that the buildings under their jurisdiction are maintained in a sanitary condition and conducted as efficiently and economically as possible, consistent with the regulations."

At Dr. Frankel's request, the National Health Council will coöperate in supplying data through its Washington office.

#### PROGRESS ON MATTERS PREVIOUSLY REPORTED

S. 1039. Sheppard bill for the protection of maternity and infancy. After discussion at various times during the last three days in June it was voted on June 30, 1921, to take it up on the tenth legislative day after June 30. The Senate is then to vote on the bill with its amendments with limitations on the length of the speeches.

An amendment to the bill was introduced by Senator Moses on June 30. This provides for investing the authority for the administration of the act in the U. S. Public Health Service instead of the Children's Bureau. The argument supporting this amendment is that the U. S. P. H. S. with its staff is better prepared to enforce protection of maternity and infancy than is the Children's Bureau of the Department of Labor. A previous amendment, introduced April 28, 1921, was never acted on. It provided for coöperation between the Federal Government and state governments in the matter.

S. 2116. H. R. 7294. Willis-Campbell bill prohibiting sale of beer for medicinal purposes. Passed by the House and favorably reported in the Senate. On June 27 the House of Representatives passed the Willis-Campbell bill by a vote of 250 to 93. The measure was brought before the House by a special rule from the Rules Committee after Chairman Volstead of the Judiciary Committee had failed to convince the Committee that his own measure should be given a special rule in the House. The committee rejected the Volstead bill and

drew up its own bill, known as H. R. 7294. Senator Willis of Ohio introduced the identical measure in the Senate and it was referred to the Committee on the Judiciary. H. R. 7294 contains many of the same provisions with amendments of the original Volstead measures presented to the House and known as H. R. 5033, H. R. 6752 and H. R. 6752 with amendments.

Opponents of the measure made a fight on the floor of the House, declaring that the legislation violated the eighteenth amendment to the Constitution, which, they declared, only prohibited the sale of beer for beverage purposes and could not, therefore, be interpreted as preventing a physician from prescribing beer for his patients. They ridiculed the bill as attempting to regulate the practice of medicine by statute, and cited many eminent medical authorities to show that beer was efficacious as a medicine and was constantly prescribed by physicians in the practice of medicine. Another argument advanced was that the proposed act permitted physicians to prescribe whisky and liquor, which contained a larger percentage of alcohol than beer and, therefore, was more harmful and dangerous to the public health. Upon a special rule, the bill had to command a two-thirds majority of the House, which was accomplished on the final ballot. The terms of the measure as affecting the medical profession are as follows:

(a) Prohibits further importation or manufacture of liquor until the present stock held under government supervision for medicinal purposes is exhausted.

(b) Prohibits sale of beer to the sick upon a prescription issued by a physician.

(c) Limits the number of liquor prescriptions to be issued by physicians to 90 every three months.

This bill was favorably reported in the Senate by the Judiciary Committee on July 6, 1921.

S. R. 77. King resolution to investigate lobbying in Washington. The sub-committee is expected to report soon to the Committee of the Judiciary of the Senate. There appears to be a division in the sub-committee, some members desiring to limit the investigation to the lobbyings of the interests advocating a tariff on dyes, while the minority favors investigating all interests

that maintain representatives in Washington.

H. H. 6611. Sweet bill for creation of Veteran's Bureau. The Senate Committee on Finance, to whom this measure was referred after its passage by the House of Representatives, June 10, 1921, scheduled hearings on July 5, 1921. No witnesses reported to give evidence before the committee and the meeting spent its session in the discussion of amendments and changes as suggested by Director Forbes of the Bureau of War Risk Insurance and approved by the American Legion.

S. R. 93. Resolution to investigate bureaus and agencies caring for war veterans. Introduced by Senator Sutherland, June 13, 1921. Referred to Committee on Audit and Control of Contingent Expenses. Favorably reported without amendments.

The Hospitalization Board appointed by Secretary Mellon to study and make recommendations concerning the expenditure of the \$18,600,000 appropriated by the last Congress, made its first report to the Secretary of the Treasury on June 20, 1921. The report was immediately approved. It provides for the expenditure of \$3,010,000 upon seven hospital projects as follows:

At U. S. Public Health Service Hospital No. 55, Fort Bayard, N. M.; expenditure of \$850,000 for construction of permanent hospital unit of 250 beds and improvement of existing facilities.

At U. S. Public Health Service Hospital No. 42, Perryville, Md.; expenditure of \$500,000 for erection of buildings to accommodate 300 neuro-psychiatric patients and improvement of existing facilities.

At Fort Logan H. Roots, Little Rock, Ark.; expenditure of \$250,000 for remodeling the post hospital to provide for treatment of approximately 300 neuro-psychiatric patients.

At Lake City, Fla.; expenditure of \$300,000 for the construction of buildings and for improvements to an addition of a tuberculosis unit of 300 beds.

At Fort Walla Walla, Wash.; expenditure of \$450,000 for the construction of a general hospital of 150 beds.

At Whipple Barracks, Prescott, Ariz.; expenditure of \$600,000 for enlargement of present hospital of 400 beds caring for tuberculosis patients.

At Alexandria, La.; expenditure of \$60,000 to re-erect buildings recently destroyed by fire.



District of Columbia.—The District is governed by Congressional enactments.

S. 2040. Capper bill regulating school attendance and child labor in the District of Columbia. The Senate Committee on the District of Columbia made a favorable report on June 28, 1921. The bill provides for compulsory school attendance, taking of a school census, creation of a Department of School Attendance and Work, and regulation of child labor. The matter of child labor is cared for by a consolidation of the existing child labor office with the new Department above noted and by having it operate under the supervision of the Superintendent of Schools.

S. 2205, 2206, 2208, 2209. Introduced by Mr. Ball on July 5. Referred to Committee on District of Columbia. These bills provide for enlarging the powers of the Juvenile Court in order to protect the childhood of the District.

H. R. 7212. S. 2208. Introduced by Mr. Underhill in House on June 17 and by Mr. Ball in Senate, July 5, 1921. Referred to the Committees on the District of Columbia. This measure authorizes the Secretary of the Treasury to detail a medical officer of the Public Health Service with special knowledge in the diagnosis of insanity and mental defects, to examine children brought before the Juvenile Court of the District of Columbia. The appointment of a social worker or psychologist to assist in these examinations and perform other duties in regard to delinquent children of the District is also provided for in the bill. The sum of \$10,000 is appropriated to cover expenses.

H. R. 7570. To regulate the practice of optometry in the District of Columbia. Introduced by Mr. Focht on July 6, 1921. Referred to Committee on District of Columbia.

S. 758. Myers bill prohibiting experiments on living dogs in the District of Columbia. Hearings were heard before the Senate Judiciary Committee on June 29, 1921. Only one witness appeared, Dr. W. R. Hadwen of England, whose testimony was entirely in opposition. No action was taken.

**National. Congressional Procedure.**—National Health Council Report brought down to July 21, 1921.

#### NEW LEGISLATION

S. 2241. H. R. 7699. Industrial rehabilitation of the blind. Two bills identical in language giving authority to the Secretary of the Treasury to grant to any person who is blind permission to establish a stand for vending newspapers or other articles in any public building under his control.

A number of other bills have only incidental health interest, namely: H. R. 7787, with reference to the continuation of the Monthly Labor Review; H. R. 7738, to reimburse officers, enlisted men and members of the Nurse Corps of the Army for civilian medical expenses while away from their commands; H. R. 7687, authorizing boards of investigation of the U. S. P. H. Service to subpoena witnesses; H. R. 216, incorporating disabled veterans of the War; and S. 1565, for the retirement of all disabled officers of the Army under equal terms.

#### PROGRESS ON BILLS PREVIOUSLY CONSIDERED

S. 1039, H. R. 2366. Sheppard-Towner Bill for the Protection of Maternity and Infancy. Hearings in the House were begun July 12, 1921, and were in progress on July 21. From the questions of the Committee it would seem as if the attitude of the majority is in favor of the bill. There is some doubt as to what bureau should administer it. On July 12 in the Senate Senator Kenyon introduced a technical amendment, placing it under the administration of the Children's Bureau.\*

H. R. 6611. Sweet Bill for a Veteran's Bureau passed the Senate July 20.

Most of the amendments in the Senate clarify the language of the House bill. There is no change in the consolidation policy of the original Sweet measure, which provides for one bureau in the Treasury department, combining the Bureau of War Risk Insurance, the Rehabilitation Division of the Federal Board of Vocational Education and so much of the U. S. Public Health Service as relates to the examination, assignment to hospitals and welfare of the former service men. Some of the amendments provide for the protection of the patients in hospitals against arbitrary penal-

ties without appeal for infraction of rules. Another increases the pay of attendants of blind or disabled soldiers from \$20 to \$50 per month. Besides transferring the personnel of the various bureaus and services consolidated into the Veteran's Bureau, the Senate bill as finally passed included transfer of all equipment, records, files and property. The bill now goes to conference.

H. R. 7294. Willis-Campbell Bill supplemental to National Prohibition Act before the Senate. By a vote of 47 to 17 the Senate on July 18, 1921, deferred action on the Willis-Campbell bill, which has already passed the House, and which prohibits the sale and manufacture of beer for medicinal purposes. Senator Sterling, in charge of the bill, made a determined effort to make the anti-beer measure the unfinished business of the Senate, but a motion by Senator Norris favoring consideration of his measure providing financial relief for the agricultural interests passed by a safe majority. In the meantime, Senator Sterling has announced his intention of bringing up the measure at every opportunity until it is finally disposed of. Various members of the Senate have spoken for and against (it seems as if, to date, mostly against) the bill. Three amendments to the proposed act have been presented to the Senate since June 28, 1921:

- (a) Amendment by Senator Wadsworth, introduced July 12, 1921, provides that the prohibition against importation shall not include distilled spirits of American production shipped abroad and then reimported in original packages.
- (b) Amendment proposed by Senator McCormick July 18, 1921, gives authority to any assistant or agent to perform any act authorized to the Commissioner of Prohibition.
- (c) Amendment presented by Senator McCormick adds "or his duly authorized agents in the several states" whenever the word "Commissioner" is contained in the bill.

H. R. 4981. Amendment to Pure Food Law Passes House. This measure, known as the Slack-Filled Bill, passed the House on July 6, 1921, and went to the Senate, where it was referred to the Committee on Agriculture and Forestry. It is an amendment to the Pure Food Act and its purport

\*The Sheppard-Towner Bill passed the Senate on July 22. Further details in the October JOURNAL.

is to compel manufacturers of all products to fill boxes and other containers according to the weight designated upon the outside.

S. Res. 77. Investigation of Lobby Activities. Senator Cummins of the Committee of the Judiciary on July 12, 1921, submitted a report to Senate on the resolution creating a special committee to investigate lobbying. The report is favorable to an investigation, but amends the original resolution and confines the proposed investigation to the dye industry. The amended resolution is referred to the Committee to audit and control contingent expenses of the Senate.

Government Reorganization — Progress. Walter F. Brown, Chairman of the Smoot-Reavis Joint Committee on Reorganization, has announced that he will present to the President and the cabinet very soon, tentative plans for regrouping the various government departments. The general bill providing for the first changes will also be before congress in a short time, according to the information given out.

H. J. Res. 174 by Representative Reavis provides that the House of Representatives shall pay out of its contingent fund one-half of expense of Smoot-Reavis Joint Committee on Reorganization of Government. S. Res. 109 by Senator Warren provides the same thing with respect to the Senate.

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District of Columbia.—S. 2083. Regulates Embalming and Undertaking in District of Columbia. Referred to the Committee on the District of Columbia. This bill provides for the establishment of an undertaking and undertakers' and embalmers' examining.

H. R. 7038. To Create a Department of School Attendance and Work Permits for the Administration of the Child Labor Act in the District of Columbia. Referred to the Committee on the District of Columbia.

H. R. 4118. Raker Bill for Prevention of Venereal Disease in District of Columbia. This bill would compel persons not under a physician's care to report themselves victims of venereal diseases to the health authorities within three days after becoming aware of the existence of the disease. The House District of Columbia Committee held hearings on this measure on June 14, 1921. The legislation was endorsed by all of the witnesses, although certain sections were opposed, because of supposed interference with personal rights of citizens.

Florida.—The 1921 Legislature reduced the mileage allotted to the State Board of Health one-half, thereby necessitating considerable curtailment of important work in order to keep within income.

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Illinois.—An important measure enacted by the 52nd General Assembly is the provision for approximately 25 state health officers to be known as district health superintendents. While the State Department of Public Health feels that the county is the logical and most practical unit in which to organize and build up efficient public health service in Illinois, and that the passage of Senate Bill No. 294, providing for full-time health officers in every county of the state, would have constituted a much saner and more progressive step than the provision for 25 district health superintendents, still the latter represents a decided step forward and offers a beginning and an opportunity to demonstrate the value of more intensive public health service.

With the additional personnel referred to, public health administration in Illinois will compare more favorably with that in some of the other progressive states. New York state, with 62 counties, has 15 full-time medical health officers each assigned to a definite district. Massachusetts with 14 counties has seven district health officers. Ohio with 88 counties has 44 full-time county health officers. Illinois ought to have at least 65 full-time district or county health officers.

If active, energetic men with good training and experience are selected for the district health superintendents, there ought to be a marked increase in the efficiency of public health administration in this state, and a considerable improvement in the public health.

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Nevada.—The Rules and Regulations for the Control of Venereal Diseases, recently published by the State Board of Health include a group of older rules of various dates of adoption and some recent ones. The older rules include definitions, treatment only by a licensed physician, notification by physicians and dentists, records, announcement of name, isolation of suspected persons, repression of prostitution, forbidden occupations including food handling, laundry and swimming pools, aid to physicians

in diagnosing, reporting of unusual prevalence, and coöperation with the U. S. P. H. Service. There is an act relating to Barber shops dated 1917 requiring sanitary practices.

New legislation dated March 22, 1921, prohibits advertisements and enforces prevention of ophthalmia neonatorum. It is now unlawful in Nevada for any person to publish, distribute, post, display or manufacture any label or advertisement which refers any person to any place at which may be obtained treatment for venereal and allied diseases or medicine for such treatment. The penalty is a maximum fine of \$500, or six months' imprisonment. Exceptions are the U. S. P. H. Service, the state of Nevada or any political subdivision of the state. With reference to infant blindness it is incumbent on the doctor, midwife or attendant to report any swelling or unusual conditions of the eyes of the new born. The duties of the local officer and of the State Board and officials are prescribed.

The final section of this act provides that none of the provisions of the act or of the laws of the state regulating medicine or healing shall be construed to interfere with the treatment by prayer, or with any person who administers to or treats the sick and suffering by mental or spiritual means, nor shall the person who selects such treatment for the care of disease be compelled to submit to any form of medical treatment.



**New York.**—The health legislation for 1921 includes the following items in amendments to existing statutes:

**Chapter 249**—Authorizes second and third class cities to create public health departments in place of boards of health and provides for full-time health executives, who in second class cities will have the title "Commissioner of Health," and in third class cities that of "Health Officer." The term of office of such officials is made four years, instead of two, as at present.

No person shall be eligible to appointment as commissioner of health or health officer unless he is a physician or surgeon licensed to practice under the laws of New York state, has practiced as such or been engaged in public health work for a period of five years and has complied with the qualifications prescribed by the Public

Health Council. Exception is made in the case of physicians who have received the degree of doctor of public health in an institution of learning recognized by the University of the State of New York.

Authority is given for the appointment by the mayor of an advisory board consisting of five resident and practicing physicians.

**Chapter 509**—Empowers county boards of supervisors to establish a general health district which may include the county or any part or parts thereof; except that no first or second class city, and without its consent no third class city, may be included in such district. The act makes provision for the continuance of present existing local health districts, and for the completion of the term of office of present local health officers.

**Chapter 566**—Amends penal law in relation to reinspection of premises where females or children are boarded.

**Chapter 708**—Repeals the narcotic drug law and abolishes the department of narcotic drug control. All books, papers, records and documents are turned over to the State Commissioner of Health, but no duties are transferred.

**Chapter 510**—Provides for a division of sanitation of the State Department of Health and transfers certain duties heretofore assigned to the State Department of Health to the State Engineer: viz., the approval of plans for sewerage and sewage disposal for municipalities and town sewer districts and for the discharge or disposal of wastes from industrial establishments.

**Chapter 130**—Empowers board of supervisors in counties not having a tuberculosis hospital to appoint and employ such public health nurses as such boards may deem proper.

**Chapter 263**—Empowers boards of supervisors in counties not having a tuberculosis hospital, to organize and operate clinics for the medical examination of persons who are or may be suffering from tuberculosis.

**Chapter 398**—Provides for the registration of unrecorded births when certified copies are required *at any time* after the birth (instead of within ten years) and for the filing of sworn statement of facts within one year after the death of a person—where it appears that no certificate of birth or death was made or filed at the time same occurred.

**Chapter 269**—Amends chapter 411, laws

of 1917, relating to the registration and supervision of laboratories where live pathogenic germs are handled, by elimination of the provision excepting "places where live pathogenic germs or cultures of such germs are handled for duly organized public health boards or departments and for no other person or institution."

Chapter 270—Amends section 20 of the public health law by providing that members of boards of health of consolidated health districts shall be allowed a per diem compensation and their actual and necessary expenses.

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Pennsylvania.—Note has already been made with reference to the number of health enactments by the State Legislature, but the variety of subjects considered in them was not given. The Governor approved bills on the following subjects: Untrue, deceptive or misleading advertisements; oleomargarine, butterine, etc.; Federal appropriation for venereal disease; disposition of drugs offered in evidence; designating State Asylum for the chronic insane as a hospital for persons suffering from syphilis; homes for indigent orphans; maintenance of tuberculosis sanatoria; amendment to vital statistics law; amendment to act relating to practice of medicine; amendment to law pertaining to quarantine and communicable diseases; appropriating to the department of health moneys received from the United States for hospital and sanatorium facilities for discharged sick and disabled soldiers, sailors and marines; coroners' fees in second class counties; examination and segregation of prisoners for certain conditions on admission to jails or penal institutions; practice of pharmacy; creating Department of Public Welfare; bottling establishments for non-alcoholic drinks; tuberculosis sanatorium, West Mountain, Scranton, Pa.; women and children; management of contagious disease hospitals; service of legal process re lunatics, etc.; housing—first-class cities; examination and treatment for venereal diseases (prisoners); amends anatomical act; appropriates money from U. S. for promotion of sanitation, public health, etc., etc.; gifts to orphans' homes; marriage license law—additional fees; drug control; promulgations of Advisory Board, etc.; food handlers—public eating places; cigarette

law amendment; prohibits advertising for venereal diseases; Dental Council and State Board of Examiners; appropriation for burial of indigent patients at Mont Alto; juvenile offenders; adulterated butter; pharmacies; licensed dental assistants and dental hygienists; vocational rehabilitation; houses of prostitution (injunctions); optometry; medical inspection of schools; drug addicts and inebriates; county tuberculosis hospitals; burial of bodies of indigent persons.

Bills that did not receive the Governor's approval related to protection of food from flies, dental practice and marriage licenses.

For the two years ending June 1, 1923, the appropriation totals for the State Health Department are approximately those of the preceding two-year period; for which period \$5,364,128.00 was appropriated for the use of the State Department of Health.

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Wisconsin.—The public health laws of the state have been materially strengthened as the result of the favorable attitude towards health problems shown by the Legislature and executive branches of the state government. The Legislature provided a fund of \$51,000 per year for general administration of the State Board of Health, \$41,250 per year for venereal disease control, \$13,300 per year for the Bureau of Communicable Diseases, \$5,000 per year for the supervision of rest-rooms and comfort stations, \$31,100 for the first year and \$21,100 for the second year for the Bureau of Child Welfare and Public Health Nursing. The former appropriations of \$7,490 for laboratories and \$1,500 for silver nitrate were renewed. Other funds are received under the licensing laws.

Other acts passed which affect the State Health Department were:

Providing for a full-time health officer in all cities of 25,000 or more.

Providing for vaccination of school children at expense of the municipality, except where parents choose their own physician for the purpose; and reducing the exclusion period when smallpox is present from 25 to 14 days.

Transferring the jurisdiction of registered nurses from the Board of Medical Examiners to the State Board of Health, and providing for a committee on nursing education and a Director of Nursing Education.



## STATE HEALTH NOTES— GENERAL

National.—A concerted effort is being made by the U. S. Public Health Service and the National Park Service to make the national parks of the United States safe and sanitary for the vast number of Americans who have recently taken to touring them. Before the war, when tourists were fewer and most of them traveled on stage lines and stayed at park hotels, the sanitary problem was simple. Since the war, however, the great majority travel in automobiles and camp out, enormously complicating all health matters.

Since early in January the U. S. Public Health Service at the request of and in co-operation with the National Park Service, has been preparing for the work; and on May 15, it sent its first sanitary engineers into Yellowstone, Mount Rainier, Yosemite, and Grand Canyon parks. Other engineers, or engineers who have finished work on their earlier assignments, will go to other parks. Only in the largest and most popular parks, such as the Yellowstone, will it be necessary for a sanitarian to remain all summer.

The work consists in examination and protection of water supplies, disposal of garbage and sewage, inspection of milk and food and the way they are handled; providing for camp policing and sanitation; and prevention of malaria. Malaria-carrying mosquitoes have been found in Yosemite Park; and especial efforts will be made to eradicate them there and to prevent them from "acquiring a residence" in other parks.

Safe water on river steamers is now assured. The days when carelessness in regard to the supply of drinking water on river steamboats, particularly on the Mississippi, sowed typhoid fever and dysentery among passengers, seem to be over. Since April, when the U. S. Public Health Service assumed the supervision of water supplies on steamboats engaged in interstate commerce, boat companies on the Mississippi and Ohio have installed water purification apparatus for supplying their boats; and independent vessels are fast installing them where necessary; that, is where an ample supply of "certified" water is lacking.

Children who go to work between 14 and 18 years of age need special protection if they are to reach manhood and womanhood

with good health and well-developed bodies. The United States Department of Labor through the Children's Bureau has just issued a report called "Physical Standards for Working Children" in which a committee of eleven physicians appointed by the Children's Bureau explain how the health of children at work may be protected.

An effective means of protection lies in the adoption of physical standards which all children entering industry are required by law to meet. Eighteen states now have a law requiring children to be examined before going to work. These states are: Alabama, Arizona, California, Connecticut, Delaware, Illinois, Iowa, Kentucky, Maryland, Massachusetts, Minnesota, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, and West Virginia.

Periodical examinations for children after they have gone to work are recommended by the Committee as a still further means of protection. As yet no state has taken this step, though an exceptionally good opportunity for putting into effect an adequate program of health supervision, says the report, is furnished by the compulsory continuation-school laws now in force in 22 states.

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California.—At a meeting of the State Dental Association, held in San Francisco the last week in June, more than 500 delegates were pledged to stimulate activity in the promotion of dental hygiene work in their respective communities. Dr. J. Camp Dean, of Oakland, newly elected President of the Association, said: "With these delegates personally promoting the care of the teeth as part of the curriculum in the schools in California, dental clinics of this state should surpass those in all other states."

The Dental Hygienists of California participated in the program of the California State Dental Association Convention, June 30th. Besides the exhibit given, papers were read to each of the four groups of dentists assembled for classes on Thursday afternoon.

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Colorado.—The Colorado Tuberculosis Association has been active in forming branches in the different sections of the state, four

having been organized already the present year. The list of these branches, which in the later organizations take the name of public health association, is the following:

The Denver Tuberculosis Society—1917.

The Colorado Springs Branch—1919.

The Pueblo Public Health Association—1919.

The North Larimer Public Health Association—1919.

The South Larimer Public Health Association—1919.

The Boulder County Tuberculosis Association—1919.

Mesa County Public Health Association—1921.

Weld County Public Health Association—1916.

Chaffee County Public Health Association—1921.

Prowers County Public Health Association—1921.

Rocky Ford Public Health Association—1921.

In addition to these there are twelve other towns distributed throughout the state which are already suggesting similar action to their citizens.

In its little bulletin the Association sets forth the following modern principles of health betterment:

"Public health work is here to stay. It took the war to awaken us to the social and economic value of health. Any reconstruction plan which makes for social betterment will improve the health of the state. The prevention of tuberculosis, the abatement of industrial disease, and the reduction of infant mortality are some of the problems which must be met by the health agencies."

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Florida.—One of the things that has been done by the newly appointed State Board of Health of Florida is to "lay its cards on the table and make to the people of the Commonwealth a statement of the actual facts as they exist." The appropriations for the next two fiscal years, ending June 1, 1922, and June 1, 1923, are \$95,000 and \$100,000 respectively. The report of the retiring Board shows that \$167,486.46 was expended in 1919 and \$150,219.44 in 1920. If the activities under way were continued the cost for 1922 would be about twice as much as the appropriation.

"It goes without saying," writes Dr. Raymond C. Turck, the new Health Commissioner, "that to keep expenditures within the amount of the income it is, and has been, necessary to curtail present work, and further that promotion of new activities at state expense is impossible."

Dr. Turck asserts that the legislature must have been misinformed as to the needs of the Board, for "any fair-minded body having any knowledge of the immense economic value of modern health work, and of the crying need of this state along that line" could not have cut down the appropriations to a point where the functioning of the Board is hampered. Owing to the lack of funds the state will be obliged to cut down its work seriously and in a very restricted manner keep alive the Bureaus of Child Welfare and Venereal Disease, and do what other things its funds will permit.

The Board is very outspoken and it will not be its fault if the people of Florida do not learn some truths about the administration of public health.

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Hawaiian Islands.—As a monument to her husband, the late Ex-Governor George R. Carter, Mrs. Carter is making an effort to provide dental service in the public schools of Honolulu. Dr. Alfred C. Fones of Bridgeport was consulted by the proponents of the plan and a preliminary survey has been made of the mouths of the fifth grade children in Honolulu. It was found that the average was at least six cavities per child. This, it appears, is about the record in Bridgeport, Conn., and there proves to be quite a similarity in the food of the children despite the geographical distance separating their homes.

At the present time Mrs. Carter plans to build a dispensary and to organize a training school for dental hygienists in September. Probably the preventive clinic in the schools will open simultaneously with the dispensary and the ideal combination of prophylaxis education and reparative dentistry will be provided for the children of Honolulu.

Legislative aid has been invoked to pay the salaries of the dental hygienists.

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Illinois.—A new catechism on poliomyelitis has just come from the press. The questions and answers appear in simple

language and cover the subject very inclusively. This catchism was prepared by the State Department of Public Health for the benefit of physicians and others who may be interested. The basis for the information that appears in the catchism has been gained through the operation of a large number of clinics (now 25) that have been conducted regularly throughout the state during the past four years, for the after-care of victims of infantile paralysis. Those who wish a copy of this circular may obtain same upon application to the Department.

Two new motion picture films, "The Long versus the Short Haul" and "The Trump Card," have been added to the loan service of the Department. Films are available to local communities without cost except for transportation charges one way.



Massachusetts.—The Scientific Temperance Federation of Boston announces reports on three investigations conducted by it during the past year, which are available for the use of physicians and public health administrators. The first of these concerns the reputed increase of narcotic addicts under prohibition. Evidence from all sections of the country obtained from public health and law enforcement officials showed that there was practically no increase traceable to prohibition of alcoholic liquors, the apparent increase noted in a few cases being due to enforcement of anti-narcotic laws.

The second investigation was with reference to the value of alcohol as a preventive of or remedy for influenza and pneumonia. The third study was of statistics in New York City making a comparison of mortality figures before and after the enactment of prohibition legislation.

The Federation states that its reports present evidence without drawing conclusions.



Michigan.—Higher birth rates and lower general death rates prevailed in the cities of Michigan and the reverse in the country districts during the first five months of 1921, according to figures from the State Health Department. In the cities the birth rate was 26.4 per thousand of population while in the country it was 23.6, while the mortality rates were 11.8 and 12.6 respectively. The infant mortality for the cities was 86 and for the rural districts, 77.

The motor clinics of the State Health Department have been busy the past year and are beginning a new year with the first of August. Since September, 1920, the clinics, of which there are two units, have examined 7,474 persons in 33 counties and have turned away an equal number for lack of time. It is expected that the remainder of the state can be covered before snow flies.

Dr. Olin, Health Commissioner, is endeavoring to impress upon the minds of the public the facts that diphtheria and smallpox in a community are unwarranted since man has been furnished by science with an absolute preventive for both. Both these diseases show increase in Michigan over the incidence last year.



Minnesota.—The anti-rabic work of the Minnesota State Board of Health has been discontinued, for two reasons, first the comparative rarity of the disease, and second the fact that commercial vaccines of reliability are now on the market. The State Board will continue to advise with physicians and will furnish them with lists of reliable commercial houses producing the vaccine. It will continue further to make laboratory diagnoses of suspected animals.

The poliomyelitis after-care work which has till now been a function of the State Board of Health has been given over to the State Hospital for Indigent Crippled and Deformed Children. In order to avoid confusion, however, and perhaps a delay in the recording of cases, physicians are asked to notify the State Board of all cases of infantile paralysis as well as of epidemic meningitis.



Nevada.—At its meeting at Elko, on June 24-25, 1921, the Nevada State Medical Association passed a resolution endorsing the State Board of Health for the promulgation of certain regulations for the prevention and control of venereal diseases, and further the physicians pledged the hearty coöperation and support of their association in the execution and enforcement of these laws. The rules and regulations in question are a bringing together of a number of different enactments and approvals, those of recent date being set forth in this issue of the JOURNAL under "State Health Notes—Legislation."

**New Jersey.**—About one hundred and fifty physicians from New Jersey, New York and Pennsylvania attended the conferences on the diagnosis and treatment of gonorrhea and syphilis, which were given at Newark, N. J., under the auspices of the Venereal Disease Bureaus of the New Jersey State and Newark City Health Departments.

The first session, which was devoted to syphilis, began with the discussion of an exhibition of stereopticon slides illustrating "The Cutaneous Manifestations of Syphilis," by Dr. Howard Fox, of New York.

Among the slides shown were numerous illustrations of the severe types of late cutaneous syphilis that are rarely seen at the present day on account of our improved methods of diagnosis and treatment. The routine treatment of syphilis and the demonstration of the drugs used at the Bellevue Hospital Clinic was discussed by Dr. Mihran B. Parounagian of New York, Director of the Department of Syphilology, Bellevue Hospital.

The necessity for the routine use of dark-field in fresh lesions and the blood Wassermann tests when the lesions no longer contain the *Treponema pallidum* was explained in detail to impress the importance of these procedures on the physician in private practice. Dr. Parounagian urges the use of the spinal punctures in tests for the diagnosis and treatment of latent or neurosyphilis, discussing the kinds of arsphenamine to be used in various types of cases, and expressed his preference for the old arsphenamine rather than the neo-, except in spinal cases. At the Bellevue Clinic over 4,000 silver arsphenamine injections had been administered and the observations are that silver arsphenamine gave less reactions and better clinical results than the other forms of the arsphenamine group.

In the afternoon meeting the staff of the Newark Hospital Dispensary Clinic demonstrated the administration of the various forms of arsphenamine and the injection of both soluble and insoluble mercury salts. Dr. H. S. Martland, Director of the Newark Hospital Laboratory, demonstrated the differential diagnosis of the *Treponema pallidum* with living cultures of the organisms of syphilis and Vincent's angina. The technique of the Wassermann reaction and the colloidal gold test was explained.

The Thursday session was devoted to the diagnosis and treatment of gonorrhea. It was opened with three operations at the Newark City Hospital which were followed by practical demonstrations of the accepted treatment for gonorrhea, conducted in the Newark City Dispensary Clinic by the clinic staff. In the afternoon there were papers by Dr. E. L. Keyes, Jr., of Cornell Medical College and Dr. Colin Luke Begg of the Post-Graduate Medical College, and Dr. C. R. O'Crowley conducted a bedside demonstration at the Newark City Hospital.

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**New Mexico.**—The outbreak of typhus fever occurring among the Navajo Indians of northwestern New Mexico has been taken in charge jointly by the Indian Medical Service and the U. S. Public Health Service. P. A. Surgeon C. Armstrong has been detailed by the Public Health Service to act as local adviser to the physicians of the Indian Service. C. E. Waller, of the U. S. Public Health Service, who is Acting Director of the New Mexico State Bureau of Public Health, has been directed by the Service to supervise the work of typhus control. In the latter part of June, Dr. Waller and Dr. Luckett, of the State Bureau of Public Health, made a trip through the northwestern part of the state, for the purpose of discovering possible cases of typhus among the Navajos scattered over this territory. Only one case was found, that of a young man who had been in the vicinity of the typhus focus on the Reservation.

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**New York.**—The Venereal Disease Division of the State Health Department has secured the use of the Social Hygiene Association field car for use throughout the state. This car will be sent to counties where the Home Bureau Agent makes a request for its use and agrees to arrange in advance for at least one lecture for men each day it is in the county. Lecturers will be furnished by the Division. Ten counties have already requested the use of the car.

According to reports received by the State Health Department, some of the dyes used in coloring toy balloons are capable of causing a severe inflammation when brought in contact with the skin while in a moist condition. Children should be warned against the pastime of making miniature balloons from the ruptured rubber by suck-

ing or blowing against small pieces of the balloons held tightly against the lips.

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North Carolina.—Interesting statistics with regard to the age groups affected by typhoid fever have just been compiled by the State Board of Health. There has been a general belief prevalent that only people of the so-called middle age are susceptible to this disease. The death certificates on file with the Board show such an idea to be erroneous. During the first four years of official death registration in this state typhoid fever is given on death certificates as the cause of death of 266 people above 50 years of age, and of 262 infants who were under five years old. During that period five persons above 85 years and 28 under one year of age were victims of this preventable disease. These statistics show that typhoid is no more a respecter of age than it is of sex or color; that the infant in the cradle and the old person approaching dotage are susceptible even as are those in the full course of adult strength.

In the six weeks ending July 1, 1921, 361 children have been treated for diseased tonsils and adenoids in clinics operated by the State Board of Health in five counties of the state. Splendid coöperation is being manifested by both the public and the medical profession in the conduct of these clinics for the remedying of defects in school children discovered through the medical examinations conducted in the schools as required by the state law. At a recent clinic one of the leading local physicians entered his own child in the clinic with the expressed belief that better treatment would be accorded than in a regular hospital.

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Ohio.—As a part of the reorganization law, the State Bureau of Vital Statistics becomes a part of the State Department of Health. Since its establishment in 1909, the Bureau has been attached to the Secretary of State's office. The transfer to the State Department of Health has been repeatedly urged for years by health workers both within and without the state. For the first time in its history the State Department of Health will be equipped with the necessary statistical machinery to correlate the returns of deaths and sickness which are the fundamental figures required to intelligently direct the preventive measures

against those diseases which cause so much suffering among the people of the state.

There were 5,944 deaths from tuberculosis in 1920 as against 6,542 in 1919, and the rate was 101.1 per 100,000 of population as against 114.6 in 1919. This is the most sensational decline in the tuberculosis death rate since the beginning of the intensive campaign against the disease in 1910, when there were 150 deaths per 100,000 population. The decline was steady until 1915, the beginning of the war period. The rate climbed during the war and in 1918, due largely to the influenza epidemic, reached 145. The present rate of 101.1 is the lowest on record and it offers a new goal to those organizations and individuals engaged in the conservation of health and happiness.

The state appropriation law effective July 1, carries provision of \$10,000 for each of the two fiscal years for the conduct of tuberculosis clinics throughout the state. These clinics will be organized and conducted by the State Department of Health. Two preliminary clinics have already been held through the coöperation of the State Sanatorium, the State Department of Health and the Ohio Public Health Association. Experience gained through these clinics should enable the new work to go forward without delay.

A graded outline of health instruction for the eight grades in the public schools has just been completed by Miss Virginia Lewis, Crusade Director of the State Association. State Superintendent of Public Instruction Vernon M. Riegel has adopted the course and plans to have printed copies in the hands of teachers throughout the state not later than September 7. The course has been designed to make the teaching of health attractive to the pupils and to give the teacher the necessary guidance and assistance in the use of material.

The Public Health Federation of the City of Cincinnati has in prospect the Cincinnati Health Exposition in Music Hall, Cincinnati, October 15-22, 1921. The Cincinnati Board of Health, Chamber of Commerce, Department of Education and practically all the health agencies in the city, together with the U. S. Public Health Service, will undertake this educational exposition for the benefit of the health of the citizens who will receive a striking lesson in the elements of health and hygiene. Halls with a floor area

of three-quarter of an acre will be devoted to exhibits, about one-third of them only, commercial, and there will be features in the great auditorium, which will give their lessons to audiences of 3,600 persons at a time. A health pageant is to be staged, there will be health movies, and each afternoon and evening will be devoted to some specialty that appeals to the people carrying with it health information of value to the community. There are more than 60 local organizations to take part in the exposition, with ten or a dozen state societies and half a score of national ones.



Virginia.—In a recent public address before ministers, Dr. Ennion G. Williams, State Health Commissioner, spoke about the health conditions or rather conditions of ill health resultant from modern practices of modern dancing, modern dressing and unchaperoned automobile parties. He called attention to a number of definite factors contributing to a better moral condition, the abolishing of liquor selling as a legal business and the wiping out of red light districts. He called attention to the fact that every state has a bureau organized to fight venereal diseases. Whether the results have been greater morality or not he did not undertake to answer, but there is reduction in the number of cases of venereal disease.

There are, however, certain social habits that are tending to increase immorality. "There has been a considerable and constant increase in divorces," he said. "Illegitimate births are occurring in circles where such disgraces were formerly unknown. Social workers tell us about the increasing delinquency among the younger girls.

"As the Health Commissioner of the State, charged with the conservation of the public health, I appeal to you as conservators of morals and ask you to consider three recent developments which, in my opinion, contribute most to create the deplorable conditions we are facing. These are: (1) Unchaperoned night automobile parties. (2) Indecent modern dancing, and (3) immodest dressing. To these might be added suggestive movies; but I hold that the three which I have enumerated are the chief items. These habits or customs are dangerous since

they appeal to the sex instinct and offer opportunity for immorality.

"Laws can punish vice, but they cannot make a people virtuous. Laws cannot regulate or obliterate the three temptations which I regard as most serious; but the home and the church can control them. Parental influence and the guidance of you pastors are the dominating factors, if the evil is to be dominated. The laws which control those affected with venereal disease, which punish those who practice commercial vice, have only a doubtful control over immorality, if any control whatsoever. It is, therefore, to you, representatives of the church, that I appeal to guard our homes and save our civilization."



Virginia.—The example of Cho-Cho, that amusing creation of the Child Health Organization, has been followed in other places besides New York city. In Massachusetts Co-Co has been advertised along similar lines. In Virginia the town of Suffolk has been training its own health clown, a bright school boy who showed aptitude for the impersonation, and it is probable that he will go on the road to other places in the state with his taking health rhymes and attention-compelling merriment.

Active features in the state work against diseases include renewed anti-tuberculosis movements under the care of Miss Agnes D. Randolph, who has returned to the State Board of Health in the position of Director of Educational Work. She has recently been engaged in the work of organizing health work in Texas. The educational division of the Virginia Board is a new department and Miss Randolph will have a field unhampered by custom or tradition.



Wyoming.—Recent appointments in the Wyoming State Board of Health include Dr. Albert B. Tonkin of Cheyenne, to be State Health Officer, to succeed himself; Hazel A. Davis to be Chief Clerk and State Registrar of Vital Statistics; and Dr. C. E. Lane of Riverton, and Dr. W. A. Wyman of Cheyenne to be County Health officer, each in his respective county; and Dr. J. F. O'Donnell of Casper, to be State Venereal Disease Officer.

# INDUSTRIAL HYGIENE AND OCCUPATIONAL DISEASE

Abstracted by Drs. E. R. HAYHURST and E. B. STARR.

**Cleveland Survey: Health and Industry.**—Detailed consideration of working conditions was not possible in the course of the brief survey, which was without legal authority and dependent upon the courtesy and coöperation of the employers. Information was obtained by questionnaire, by visit and by conference. The great majority of plants employing over five hundred persons were visited; in all about one hundred organizations were studied. The great portion of operatives are employed in a relatively small number of large establishments. About one-half of the industrial workers of the city receive some sort of medical attention in industrial plants. A relatively small amount of time and service is devoted to other than surgical work. There are 95,465 persons employed by 72 organizations with medical services including 93 dispensaries. There were 7 full-time physicians, 62 part-time physicians, 18 physicians on call, 93 trained nurses, 20 practical nurses, and 14 clerks in the personnel of the industrial medical departments. There were a few highly skilled physicians. Visiting nursing was a feature of 22 firms. Such service was of various types, sometimes questionable, and the survey makes certain recommendations: (1) Industrial nurses should be graduate, registered nurses. (2) They should be carefully chosen for professional fitness. (3) Practical, untrained nurses should be employed only under medical or nursing supervision. (4) Certain recommendations as to authority and privileges. (5) Medication by nurses to be prohibited as it is in law. (6) Contact with progressive movements should be encouraged. (7) Visiting nursing should be considered as a normal function of such service. (8) That such visiting nurses should be attached to the medical department and not to the employment department. The report then considers the dispensary equipment, cost of services (\$5 per year per employee, although one establishment stated \$11.23 which is probably not excessive), administrative relations, medical service in mercantile establishments, etc., and service beyond the plant.

There is a full discussion of industrial medical records, and the question of absenteeism. It was found that 11 industrial organizations conducted compulsory physical examinations and rejected applicants on four bases: (1) Communicable disease. (2) Liable to personal injury or harm. (3) A menace to health or safety of fellow workmen. And (4), unreasonable lack of personal cleanliness. There is a comment upon industrial psychiatry, dental service, ocular service, tuberculosis, venereal disease, and rehabilitation of industrial cripples. The small establishment is discussed, also industrial hospitals, special training of industrial physicians and nurses, and the relation to public health authorities. The report ends with a summary of 25 recommendations which should be read in their entirety.—Wade Wright, *Cleveland Hospital and Health Survey*, Vol. 7, pp. 525-556.

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**Cleveland Survey: Women and Industry.**—The author found that in February, March and April, 1920, 79 establishments, in which most of the women were employed, had a total of 22,906 women of whom 12,613 were in industrial plants, 730 in mercantile establishments, and the balance in public service or public utilities. These women were employed principally in the metal trades, textiles and knitting mills, garment trades, and candy factories. The hours of work, earnings, additional benefits, recreation, vacations, supervision, physical conditions at work, and special features in connection with mercantile establishments, laundries, hotels and restaurants are discussed. The Survey made a record of 980 women who were working on night shifts in 15 Cleveland factories on April 15, two-thirds of whom were in textile and knitting mills and the balance in metal trades. Apparently a limited amount of home work was done. It was found that the day nurseries took care of several hundred children whose mothers were obliged to work. The reports ends with a summary of 12 recommendations.—Marie Wright, *Cleveland Hospital and Health Survey*, Vol. 7, pp. 557-577.

**Cleveland Survey: Children and Industry.**

—The discussion covers the employment of children between 15 and 18 years of age. At 17 years of age, 75% of the children of Cleveland are already at work. A general statement of the effects of work upon children is followed by a discussion of the law governing the employment of minors and this by a survey of the number employed. The three sources of information on this latter point were surprisingly at variance, as the school census gave 15,846, the Industrial Commission of Ohio 5,029, and the wage survey showed 3,501,—all for the same age group, 15-18, in the year 1919.

Illegal employment of minors was fairly frequent. The largest number of minors are employed in manufacturing—in round numbers, 3,000 boys and 900 girls. It was found that the 8-hour day and 48-hour week were carefully observed. Children work largely in the manufacture of confectionery, hosiery and knit goods, the metal trades, printing and publishing, retail and wholesale trades, and telephone and telegraph work. Educational requirements for this group are not needed except for those in apprentice schools. Employers almost invariably state that the boy of certificate age, that is, 15 to 16, would be better off in school, but opinions differ as to those older. Street trades are next considered with citations of illustrative cases, then agricultural work and domestic services. In Cleveland the industrial establishments play little part in the medical examination of children, as this is done in connection with the Board of Education in its medical inspection of schools. There is a discussion of the sub-normal child in industry and of the standards for physical fitness. A summary of recommendations completes the report.—Florence V. Ball, *Cleveland Hospital and Health Survey*, Vol. 7, pp. 579-621.

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**Workers' Health Bureau.**—This is an eleemosynary organization devoted entirely to planning, installing and supervising health services for Trade Unions. The chief argument is that the Trade Union itself should take up sickness prevention work and health education in an organized manner by which, it is stated, millions of dollars could be saved each year to their own members. The cost would be far less to individual members than it costs them today. The Bureau

is not organized for profit and offers to supplement trade union activities by expert health service at cost. It is organized: (1) To conduct scientific study. (2) To recommend health programs for trade unions. (3) Educational programs. (4) To establish health departments within trade union locals. (5) To train workers' health committees. (6) To select, with scrupulous care, trained doctors, nurses and teachers. The Bureau will send representative educational leaflets and a description of its service upon request.—*Workers' Health Bureau*, New York City.

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**Physical Standards for Working Children.**

—This is a preliminary report of the Committee appointed by the U. S. Children's Bureau to formulate standards of normal development and sound health for the use of physicians in examining children entering employment and children at work. The report discusses the types of legislation governing the employment of minors in various states and the general standards of administration. It then lays down ten standards as follows: That (1) the minimum age of entering industry be not younger than 16 years; (2) children who are not of normal development for their age should not be employed; (3) thorough physical examinations for entering such children should be made by properly constituted medical officers, keeping in mind the specific occupation sought; (4) reexaminations for children changing occupations should be made; (5) periodical reexaminations for all working children should be made at least once yearly; (6) there should be centralized control of such examinations; (7) the desirability of physical examinations of children during school and preschool periods is recommended; (8) the effects of occupation on employed children should be studied; (9) authoritative scientific investigations should be made covering a list of 8 subjects suggested; (10) certain minimum standards should now be adopted as the results of scientific research already performed. The balance of the report is a detailed discussion of these minimum standards of physical fitness. There is an insert illustrating the record form to be used for the physical examinations.—Children's Bureau, U. S. Dept. of Labor, *Publication No. 79*, Washington, D. C.



# PUBLIC HEALTH LABORATORY NOTES

Abstracted by ARTHUR LEDERER, M. D.

The Optimum Hydrogen-Ion Concentration for the Growth of *B. Typhosus*, and *B. Paratyphosus* A and B.—*B. typhosus* has a range of growth from pH + 5.0 to pH + 8.6 with an optimum growth at pH + 6.8—pH + 7.0 in a salt-free veal infusion broth. Above or below these limits the resulting growth in comparison is very slight. Large variations in the H-ion concentration near the optimum zone produce only slight effects on the growth of the organisms, while slight variations at the limiting zone produce a marked effect. These observations are fully in accord with the results reported by Cohen and Clark in their studies on the growth of certain intestinal organisms at different concentrations. In the region near the optimum H-ion concentration the tolerance for alkali seems to be slightly greater than for acid. Stock cultures isolated from stools, blood and urine of typhoid patients or carriers have a more decided optimum than recently isolated cultures of similar cases. In such cultures the plateau of the growth curve is much more pronounced and extends over a wider range than in stock cultures. The latter is suggestive of microbic adaptation to changes in H-ion concentration in body fluids, particularly urine and bile. *B. paratyphosus* A and B have a range of growth at varying H-ion concentrations similar to that of *B. typhosus* but exhibit a greater tolerance for alkali than *B. typhosus*. —P. Schoenholz and K. F. Meyer, *Jour. Inf. Dis.*, 28, 384 (1921).

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Albumin in Sputum Aid in Early Diagnosis of Pulmonary Tuberculosis.—Experience has convinced the author that the qualitative and quantitative examination of the sputum for albumin is an easy and useful method of arriving at a diagnosis in the earlier stages of pulmonary tuberculosis, and might with advantage be employed not only by the specialist but also by the busy general practitioner. The presence of albumin in the sputum is an indication of active disease of the lung tissue itself. If the bronchi alone are affected, the amount of albumin present, if any, will be

negligible. If other inflammatory diseases of the lungs are excluded, all patients with 0.2% or more of albumin in the sputum may be regarded as suffering from active pulmonary tuberculosis. Used in conjunction with diagnostic subcutaneous injections of a reliable tuberculin, the albumin test is a means of distinguishing between active and inactive tuberculosis. If the reaction is positive, the disease is active; if negative, the condition is latent.—A. C. Alport, *South African Med. Rec.*, 19, 127 (1921); *Jour. A. M. A.*, 76, 1615 (1921).

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Classification of Streptococci from Normal and Pathogenic Throats, Also from Wounds.—The hemolytic and nonhemolytic streptococci found in normal and pathogenic throats were of the same varieties, when classified by Holman's sugar fermentation tests, Avery and Cullen's final hydrogen-ion concentration and their action on brom-cresol-purple and methylene blue milks. In many cases of infected wounds, particularly those of the head and upper extremity, the same strains of streptococci were found in the throat and the wound.—Lloyd Arnold, *Jour. Lab. Clin. Med.*, 6, 312 (1921).

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Variation in Typhoid Bacilli.—The variations which may occur in the characteristics of typical typhoid bacilli in regard to their abilities to utilize carbohydrates, and their behavior to serum antibodies under various conditions of cultivation were investigated by the author. One hundred and thirty-eight cultures which had been carried on artificial mediums since their isolation from patients were employed. Concerning the question whether certain of the variations from the normal type noted represent true mutations in the sense of de Vries, the author believes that this term, which defined changes of a definite character occurring in higher plants should not be introduced into bacteriology. All the alterations brought about by artificial environment in the typhoid bacillus were rapidly lost when the organisms were returned to the environ-

ments prevailing under the usual cultural conditions and in the case of the inagglutinable strains, even in the course of persistent abnormal environment, the changes observed should properly be regarded as variants and cannot be spoken of with accuracy as mutations in the sense of de Vries.—K. I. Morishima, *Jour. Bact.*, 6, 275 (1921); *Jour. A. M. A.*, 77, 67 (1921).

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**System of Laboratory Examinations and Records.**—The system of making and filing requests and reports for laboratory examinations has been gradually constructed and found uniformly satisfactory in the wards and dispensaries of the Polyclinic and Medico-Chirurgical hospitals of the Graduate School of Medicine of the University of Pennsylvania. The problem of constructing an efficient system is frequently troublesome and probably no single system will meet all conditions in individual institutions. The system described has met all essential requirements and can be readily modified if necessary to suit individual conditions.—John A. Kolmer, *Jour. Lab. Clin. Med.*, 6, 505 (1921).

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**Antipneumococcus Protective Substances in Normal Chicken Serum.**—It has been shown that the serum of normal chickens is capable of protecting mice and guinea pigs against infection with pneumococci. The protective substances are found in the water-insoluble fraction of the serum globulin. There are, in chicken serum, particular protective substances for each serological type of pneumococcus. These substances are selectively removed from the serum by the process of bacterial adsorption. In terms of the protective substances in chicken serum, Types IIA and IIB pneumococci constitute two distinct main groups and Type II strains form a subgroup to both of them.—Caroll G. Bull and Clara M. McKee, *Am. Jour. Hyg.*, 1, 284 (1921).

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**Toxic Substance Obtained by Growing Hemolytic Streptococci in a Special Medium.**—A special medium is described in which a specific toxic substance has been produced during the growth of certain strains of hemolytic streptococci. This toxic product is filtrable and the filtrates have a definite pathogenic action when injected

into mice, rabbits and guinea pigs. The poison possesses definite antigenic properties and the sera of rabbits immunized with such toxic filtrates gives protection both against infection with the cultures and against intoxication with the filtrates.—Leon C. Havens and Margaret L. Taylor, *Am. Jour. Hyg.*, 1, 311 (1921).

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**Chemical Criteria of Anaërobiosis with Special Reference to Methylene Blue.**—Various methods of anaërobiosis are viewed critically in the light of experimental tests with carefully balanced solutions of alkaline glucose methylene blue in comparison with cultural tests with *B. Welchii*, *B. tetani*, *B. botulinus*, and other obligate anaërobes. A detailed study of the decolorization of methylene blue by plant and animal tissues is described, showing the important role of absorption as a means of decolorization by these and other porous substances. The extraction from plant and animal tissues of reducing substances for methylene blue, active in alkaline solution, is described. The efficacy of deep culture methods for anaërobes is shown while the inefficacy of insoluble liquid seals is contrasted with the reliability of semi-solid waxes and greases, and that of mechanical seals. The shortcomings of certain methods of surface culture of obligative anaërobes are exposed and the value of a modification of Wright's method upheld by these studies. Finally, the desirability is indicated of determining exactly to what degree of oxygen tension reduction the decolorization of methylene blue corresponds, and whether decolorization occurs at a definite hydrogen-ion concentration irrespective of the sugar content of the solution.—Ivan C. Hall, *Jour. Bact.*, 6, 1 (1921).

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**Solid Culture Media with a Wide Range of Hydrogen or Hydroxyl Ion Concentration.**—Agar or gelatin media, if cooled before being made acid or alkaline, will jelly at limits far beyond pH concentrations tolerated by microorganisms. They may be manipulated so as to avoid contamination during adjustment of reaction and need not be subsequently sterilized.—Frederick A. Wolf and I. V. Shunk, *Jour. Bact.*, 6, 325 (1921).

# LES COMMANDEMENTS DE LA SANTÉ



Je m'engage à essayer



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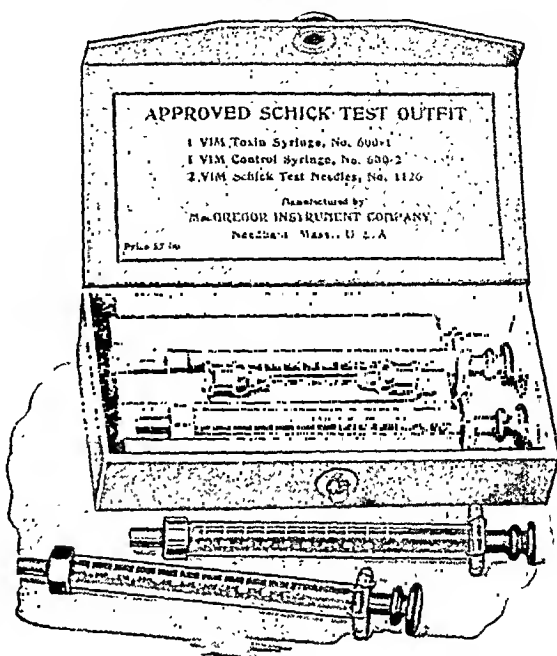
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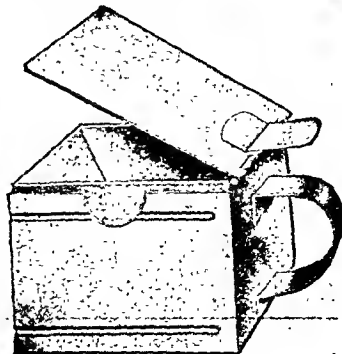
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September 13-14, Hotel Utah, Salt Lake City, Utah, State Medical Association.

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September 13-16, Bridgeport, Conn., New England Waterworks Association.

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September 26-30, Boston, Mass., National Safety Council.

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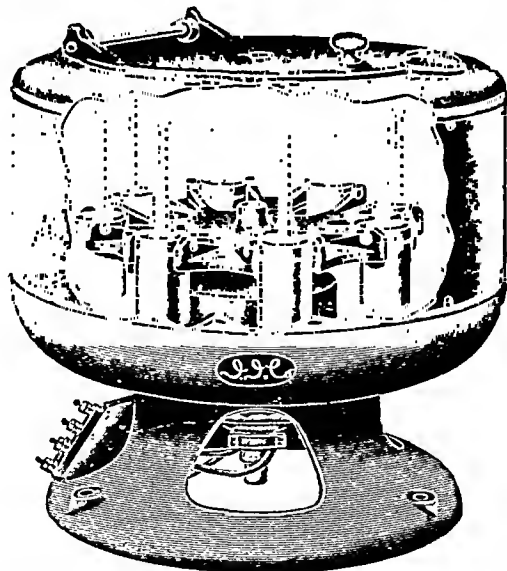
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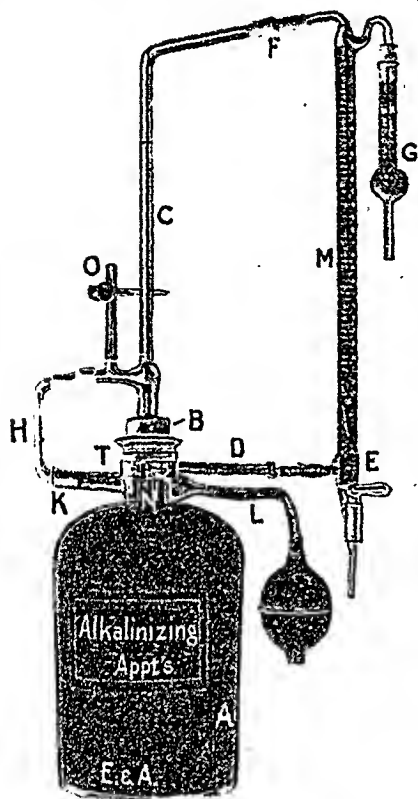
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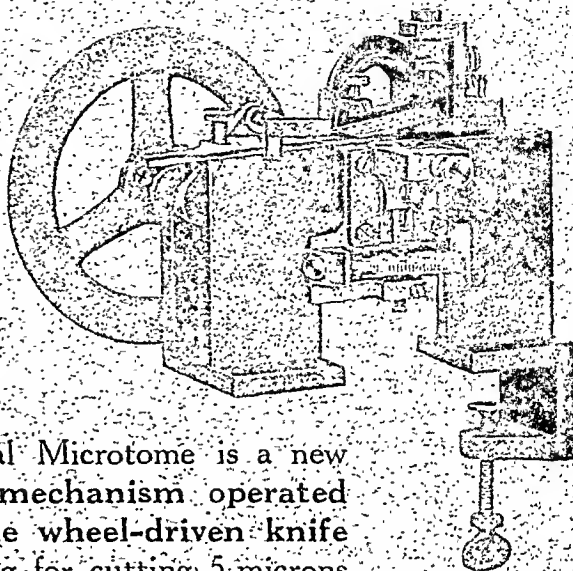
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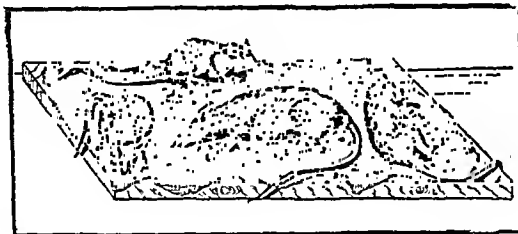
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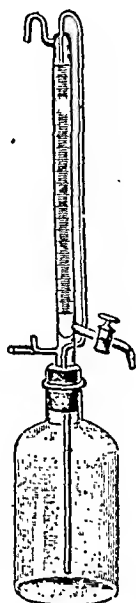
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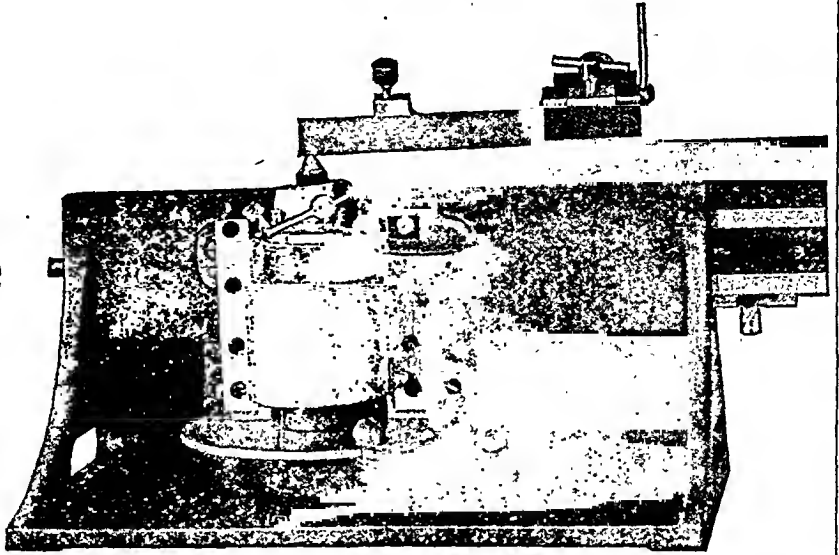
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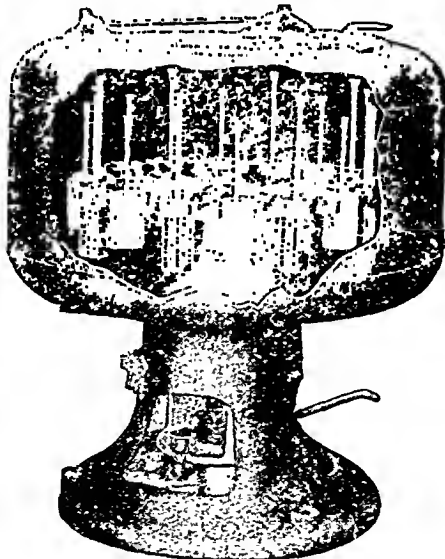
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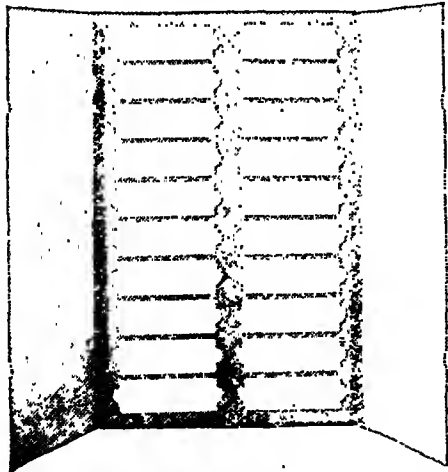
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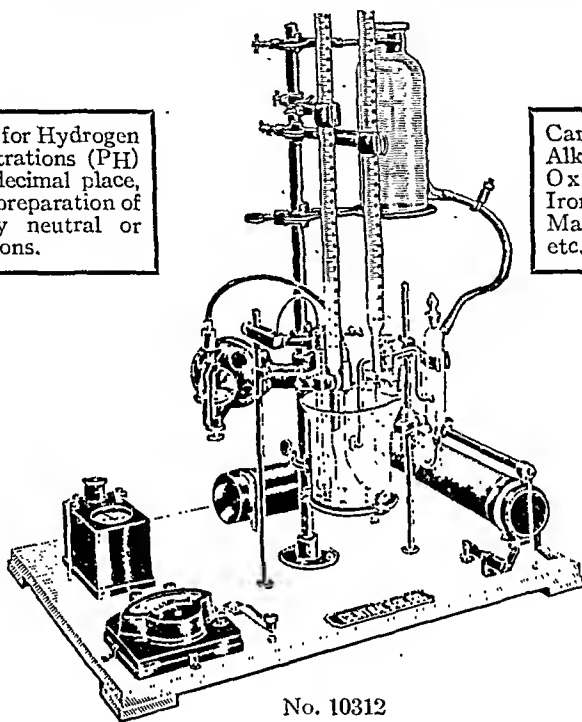
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## THE AMERICAN PUBLIC HEALTH ASSOCIATION, PAST, PRESENT, FUTURE

MAZYCK P. RAVENEL, M. D.

*Professor of Preventive Medicine, University of Missouri*

Presidential Address read at the opening General Session of the Fiftieth Annual Meeting, American Public Health Association, New York City, November 14, 1921.

Of the altruistic instincts veneration is not the most highly developed at the present day; but I hold strongly with the statement that it is a sign of a dry age when the great men of the past are held in light esteem. (Osler.)

IT seems most fitting that on this, the fiftieth anniversary meeting of the American Public Health Association, we should pause to pay homage to the lives and accomplishments of those who guided the course of our Association in its early years and won for it the proud place it now occupies as an instrument for public good. We may well review our work and take stock of our achievements in an earnest effort to determine how far we have justified our existence and attained our ideals.

The Association "had its origin in that natural desire which thinkers and workers in the same fields, whether of business or philanthropy, or the administration of civil trusts, have for mutual counsel, advice and coöperation." (Smith.)

A preliminary meeting, attended by Doctors E. M. Snow, Providence, R. I., Chairman; J. H. Rauch, Chicago, Ill.; J. Ordronaux, Roslyn, N. Y.; Stephen Smith, New York City; E. H. Jones, New York City; C. C. Cox, Washington, D. C., and Carl Pfeiffer, New York City,

architect, was held April 18, 1872, at 301 Mott St., New York, at which an informal discussion on the formation of a national sanitary association took place. A larger and more formal gathering was decided upon, and on the evening of the same day, these gentlemen, with the exception of Dr. Snow, and the addition of Doctors Elisha Harris and Moreau Morris, New York City, and Heber Smith of the Marine Hospital Service, met at the New York Hotel. At this meeting a Committee on Permanent Organization was appointed with Dr. Stephen Smith as chairman. This committee issued a call for the first regular meeting held at Long Branch, New Jersey, September 12, 1872, at which time a constitution was adopted, and Dr. Stephen Smith elected the first president.

Up to this time no public-health organization existed on the American continent, and public-health practice, in so far as it existed at all, was empirical and lacked uniformity.

In his classic address before the International Medical Congress in 1876, Dr. Henry I. Bowditch states that National Sanitary Conventions, so called, were held in Philadelphia, 1857, Baltimore, 1858, New York, 1859, and in Boston,



1860, but ceased with the outbreak of the Civil War.

Only three states, Massachusetts, 1869, California and Virginia, 1871, and the District of Columbia, 1870, had established boards of health prior to 1872, and only twelve up to 1876, the date of Dr. Bowditch's survey. In only two states was registration of births, deaths, and marriages claimed to be made with any degree of accuracy, though twenty had passed some laws concerning registration. In 1873, 134 cities in the United States had some form of health board.

In England three epidemics of cholera in 1831, 1849 and 1854, had brought the appointment of commissions of investigation. In 1848, following the report of a royal commission appointed to investigate outbreaks of disease in large towns, and to recommend measures for the improvement of the public health, comprehensive sanitary acts were adopted, a general board of health was established and medical officers of health were appointed.

In 1869 the famous Royal Sanitary Commission was appointed, and proposed for the first time a ministry of health, which failed to carry, but the Local Government Board was created in 1871. An epidemic of Asiatic cholera in 1832 resulted in a Provincial Act for the Appointment of Local Boards of Health, and in 1849 this act was amended to provide for a central board of health, to continue during the pleasure of the legislature.

In America, though we had not advanced so far, the leaven was working, and in 1850 there was published the "Report on the Sanitary Condition of Massachusetts," written largely, if not wholly, by a layman, Lemuel Shattuck. It was a remarkable paper which suggested the appointment of a state board of health, and so well outlined the duties and functions of such a board that when the board was finally appointed in 1869, the secretary, Dr. Derby, found in the pages written twenty years before, his inspiration

and support. In 1870 Dr. Derby wrote the first paper ever published in this country under the direction of a permanent body appointed by state authority for the investigation of diseases and instruction of the public concerning them.

Such was the condition of things in the English-speaking countries when our Association was born.

In France, Pasteur was revolutionizing all former conceptions of disease by his discoveries, and the formulation of new theories.

In August and December, 1857, Pasteur published his first papers on lactic acid fermentation and alcoholic fermentation, showing that fermentation was caused by living organisms.

Discussions on spontaneous generation followed and persisted for several years. The proofs against it given by Pasteur settled the dispute for all time.

In 1865 he took up the study of silkworm disease, and soon brought it under control by methods based on his new discoveries, his experiments adding much to the knowledge already gained, and confirming the theories advanced.

In England, Lister, a surgeon, began in 1867 to put into practice the ideas he had gained as a student of Pasteur, and was able to report in 1869 that of forty patients who had suffered amputations, thirty-four had survived. Such good results were unheard of at that time, and were attributed by him entirely to antiseptic surgery, which was the practical application of Pasteur's theories to surgical practice.

In 1870-72 Pasteur pursued his studies on the fermentation of beer, and invented what is now called "Pasteurization," to correct unhealthy fermentations.

No more opportune time could have been chosen for the formation of our Association. The art of medicine was becoming the science of medicine, and modern preventive medicine was being born. The discoveries of Pasteur put an end to superstition and empiricism and substituted the bed-rock of science

as a foundation on which has been erected the wonderful structure of medicine as it exists to-day.

Although begun and apparently designed largely as an association of administrative officers, it was inevitable that others should be attracted to the ranks. The science of bacteriology had come into existence as a result of Pasteur's work, and the laboratory soon became a prime factor in the study and prevention of disease. The germ of anthrax had been seen by Rayer and Davaine in 1850; Delafond, 1860, had shown its power of vegetation, and Davaine, 1863, its causative relation to the disease, while Koch, 1876, obtained pure cultures on artificial media and demonstrated the spores. Pasteur completed the demonstration, making anthrax the first disease in which the etiological relation of a germ to a disease was proved.

In 1877 the bacillus of malignant edema was discovered by Pasteur; in 1879 the germ of chicken cholera by Pasteur, and the gonococcus by Neisser. In 1880 the pneumococcus was discovered by Pasteur and by Sternberg independently, and the typhoid bacillus by Eberth.

Of even greater significance, perhaps, was the announcement in this year by Pasteur of a bacterial vaccine against chicken cholera, followed in 1881 by his epoch-making demonstration of vaccination against anthrax. This year brought also the discoveries of the pus-forming organisms, the staphylococcus and streptococcus, knowledge of which has revolutionized modern surgery and robbed maternity of its chief dangers. The year 1882 will always be notable for the discovery of the tubercle bacillus by Koch. Loeffler and Schutz isolated the germ of glanders in this year also. The year 1883 saw the discovery of the spirillum of Asiatic cholera by Koch, and the bacillus of diphtheria by Klebs, while 1884 was marked by two discoveries of great public-health significance—the isolation of the diphtheria bacillus by Loeffler, and of the typhoid bacillus by Gaffky.

The influence of the new science on public-health ideas and practice was paramount. In the pages of our *Transactions* one may find a veritable history of bacteriology, with its practical application to public health, and while the earlier discoveries came largely from abroad, our Association was not without representatives, notably in the person of Dr. George M. Sternberg, our president in 1886.

The Association from its inception has taken a broad view of its duties to the public, and has established an enviable record for public service. At the third Annual Meeting, held in Philadelphia, the following resolution was adopted:

That a committee consisting of a member of this Association from each state and territory of the Union . . . be appointed to petition Congress, at its next session, to institute a bureau of health, to be located at Washington City, with a branch at the seat of each state and territorial government.

That this Association urge upon the governor and legislature of each and every state in the Union the importance of enacting laws creating state boards of health and providing adequately for sanitary administration.

Five years later, in 1879, under the impending danger of a yellow fever epidemic, Congress created a National Board of Health,\* which functioned for the term of four years provided for in the act creating it, but was allowed to pass out of existence by the next Congress, in spite of petitions showing the need of such a body, the excellent results achieved during its short life, and the importance of its continuance.

We have been more successful with the states, and there is now no state in the Union without some form of a health department.

#### MEMBERSHIP

With the growth of the Association, it became increasingly evident that its objects could be best attained by consultation and coöperation with our neighbors, whose problems were much the same as

\*A review of the "Operations of the National Board of Health" is given in Volume VIII, page 71, of our *Transactions*, by Dr. J. L. Cabell, President.

our own, so at the St. Louis meeting, in 1884, Canada was invited to join with us, and became a constituent member—without question the most important measure taken since the formation of the Association.

At the Brooklyn meeting, in 1889, the secretary was instructed to communicate with the health authorities of Mexico, Central America, Cuba and Colombia, and invite these countries to coöperate in the work of the Association. Mexico alone responded, accepting the invitation, and at the Charleston meeting, in 1890, we had the honor of entertaining Dr. Domingo Orvañanos and Professor José L. Gomez as the official representatives of the Superior Board of Health of Mexico. In 1892, at the meeting in the City of Mexico, the amendment to the Constitution proposed in 1891 was adopted, and Mexico came into the Association fully. These two sister countries have added greatly to our strength, and have given many of our distinguished members and officers.

In 1902, at New Orleans, the newly formed Republic of Cuba was invited to associate with us, and for the first time practically the whole of North America was embraced in our membership, making us in fact, as in name, the American Public Health Association.

#### SECTIONS

The influence of bacteriology and the growing importance of laboratory work have been already referred to. Discoveries were announced in rapid succession. Laboratories rapidly became essential to health officers and boards of health for diagnostic purposes and the control of such utilities as water supplies.

Although the epidemic of cholera in London traced to the "Broad Street Pump" occurred as early as 1854, the typhoid outbreak at Lausen, Switzerland, in 1872, was the first to attract widespread attention to the danger of polluted water. Other outbreaks, such as those at Caterham and Red Hill, Eng-

land, in 1879, at Plymouth, Pennsylvania, in 1885, and at Lowell and Lawrence, Massachusetts, in 1890-91, had turned attention to the study of water supplies. The notable experiments in water purification instituted by the State Board of Health at Lawrence, Massachusetts, were designed and carried out largely by members of our Association, under the administration of our former president, Dr. Walcott. Many papers and discussions became too technical for the general meetings.

At the Montreal meeting, in 1894, Dr. Wyatt Johnston called attention to the desirability of having more uniform methods for the conduct of laboratory work. The result was that a sub-committee of the Committee on Pollution of Water Supplies issued a call for a convention of American bacteriologists, which met in New York in June, 1895. A committee was appointed to draw up procedures for the uniform study of bacteria and the differentiation of species. This committee reported at Philadelphia, in 1897, and the report was published in 1898—the first of the various "Standard Methods" now published by the Association.

A further result of this convention was the appointment of a Committee on Laboratory Work and Methods, at the Ottawa meeting in 1898, with Dr. Wyatt Johnston as chairman. In 1899, at the Minneapolis meeting, this committee reported and was discharged, its functions being taken over by the Section on Bacteriology and Chemistry organized at this time. Nearly one hundred enrolled in the new section at once; of whom approximately half were new members of the Association.

The section has always devoted much attention to the standardization and improvement of laboratory methods, and its publications are regarded as official throughout the countries of North America.

The scope of public health was rapidly widening during these years, and the

*can Journal of Public Hygiene*, and bound as Part II of Volume XXXIII. In 1908, beginning with Volume XXXIV, our papers were published by the *American Journal of Public Hygiene*, which became the official organ of the Association, and this was continued until the establishment, in 1911, of our own periodical, the *JOURNAL OF THE AMERICAN PUBLIC HEALTH ASSOCIATION*.

There are 37 volumes of our transactions, reports and papers under the original title. Of these, Volumes XXXIV and XXXV are reprinted from the *American Journal of Public Hygiene*, and XXXVI and XXXVII from the *Journal of our Association*, which continued during the first twenty-five years of our existence we published twenty-two volumes, containing 695 papers and 9,117 pages of reading matter. From 1897 to 1911, when the *Journal* was begun, 13 volumes were issued, containing 827 papers and 6,826 pages. The ten volumes of the *Journal* completed to date, 1911 to 1920, contain 1,106 articles, 136 reports, 229 editorials, and 11,379 pages, making a total of 2,993 articles and 27,322 pages of literature on health, in which every phase of the subject has been discussed by specialists and experts. These pages are not only a mine of information, but also a good history of the public-health movement during the past fifty years. The reports of committees and papers read leave no matter of interest untouched. Our general meetings have been the forum before which many epoch-making discoveries have been presented or discussed. The volumes are in demand for libraries, and it is now very difficult to obtain full sets. A review of them would be most interesting and proper in this address, but the several fifty-year histories on public-health topics which are to be presented at this meeting and published in our jubilee Volume will doubtless cover much of the same ground, so that only a few points will be noted here.

growth of the Association kept pace with it. New members with new points of view were constantly joining our ranks, and specialism was inevitable. In 1908 two new sections were organized, Vital Statistics and Public Health Administration. Three years later it became necessary to further specialize, and again, in 1911, two new sections were organized, Sociological and Sanitary Engineering. In 1914 the Section on Industrial Hygiene was formed, and that on Food and Drugs in 1917. If time and space permitted it would be most interesting to review the genesis of all the sections. They were preceded by special committees and reports, which gave evidence of the growth of the public-health idea, as well as the sense of duty to the public which has always actuated our Association. All sections were formed in response to demands which could not be put aside. At present there are requests before us for the formation of still other sections, most of which have a basis of valid claims on our attention, and with the further growth of the Association we must soon expect to see the number of sections increased.

#### PUBLICATIONS

Until 1895 the proceedings of the Association, together with the reports and papers presented at the meetings, were published as an annual volume under the title *Public Health, Reports and Papers of the American Public Health Association*. From 1895 to 1898, inclusive, they were published as a quarterly, entitled, *Journal of the American Public Health Association*, the original title and serial number being retained for the annual volume. In 1899 the annual volume was returned to, and continued until 1908, except that for three volumes, two in 1905, and one in 1906, the papers of the Laboratory Section were published by the *Journal of Infectious Diseases*, and bound as Part II of Volumes XXX, XXXI, and XXXII; and for one volume, 1907, these papers were printed by the *Ameri-*

As it were a beacon to guide the young Association, the first volume contains a paper by F. A. P. Bernard, LL.D., president of Columbia College, New York City, on "The Germ Theory of Disease and Its Relation to Hygiene," giving an excellent presentation of the new discoveries and ideas concerning disease. Although written by a non-medical man, it was in advance of much of the medical opinion of the day, since it was followed by papers on "Sewer Gas as a Cause of Scarlet Fever and Typho-Malarial Diseases"; "Does Smallpox Become Epidemic, or Spread Only by Its Own Contagion?"; "Gases of Decay and the Harm They Cause in Dwellings," and others of the same type, especially concerning yellow fever.

In comparing the earlier volumes with those of to-day, one is struck by the fact that the most important topics discussed in the early years are scarcely ever mentioned now. The first volume, published in 1873, is given up largely to yellow fever and cholera. One finds it hard to believe that cholera was at that time widespread in the United States, and that it existed in more than two hundred towns and cities of the Mississippi Valley.

Year after year we find pages devoted to the discussion of yellow fever, with many diverse theories as to its origin and propagation, such, for instance, as that it originated *de novo* in the cities of America; that the cause was cumulative and due to uncleared privy vaults; that it arose from bilge-water; that the body does not reproduce the poison of yellow fever; and that the poison may be developed by adding one or more of the excretions of the patient to decomposing organic matter under well-known conditions.

These discussions were set at rest for all time in a paper read at our Indianapolis meeting in 1900, by Dr. Walter Reed, entitled, "The Etiology of Yellow Fever: A Preliminary Note." We feel a justifiable pride in knowing that the discover-

ies therein detailed were the result of studies made by one of our former presidents, Dr. Carlos J. Finlay, and our honored fellow-member, Dr. Walter Reed, who, with Doctors Lazear, Carroll, and Agramonte, gave the final proofs. It is impossible to praise too highly the scientific acumen displayed, or the devotion to duty which led these men to place their lives in jeopardy by experimenting on themselves, one, Dr. Jesse W. Lazear, making the supreme sacrifice as a result.

Only those of Southern birth or Southern residence can fully appreciate what this discovery has meant. In his presidential address on our twenty-fifth anniversary, Dr. H. B. Horlbeck urged that the President of the United States be requested to send a commission of expert bacteriologists to Havana and Rio to study yellow fever. Three years later the method of transmission was proved, and the disease was rapidly brought under control. The causative germ for years eluded discovery, but apparently has recently been cultivated by Dr. Hideyo Noguchi. Yellow fever was first brought into the United States in 1693, and for more than two hundred years was the terror of the South. Our pages show what the disease has meant to our country, and an especially graphic portrayal may be found in a speech by Dr. Joseph Holt, president of the Louisiana Board of Health in 1886. We can at this time scarcely understand the justification of the "shot-gun quarantine" which yellow fever outbreaks brought into being. That human nature does not change very rapidly is shown by the action of the authorities of Aberdeen in 1585, who erected gibbets,—

One at the nearest cross, one other at the Brig of Dee, and the third at Haven Mouth, that in case any infectit person might arrive or repair by sea or land to this brough, or in case any indweller of this brough receive, house or harbor, or give meat or drink to the infectit person or persons, the man to be hangit, and the woman to be drownit.

The meeting at Buffalo, in 1896, was made notable by the paper of Dr. Wyatt

the intervals between the annual meetings, and giving them during the year information of the new and important developments in public health. Since its foundation it has replaced the annual volume for the publication of reports and papers.

Since March, 1919, a monthly *News Letter* has been issued. To date 112,774 copies have been distributed.

### *Standard Methods*

The Association has from its inception striven for the adoption of uniform practices and standard methods. It has for many years had various committees at work, constantly trying out methods and selecting the best. As a result, we have published the following:

"Standard Methods for the Examination of Water and Sewage." The predecessor, and really the first edition of this publication, was the report of the committee appointed in 1895 to draw up procedures for the uniform study of bacteria, adopted at the Philadelphia meeting in 1897, and published in Volume XXIII, 1898, of our *Transactions*. In 1899 a committee was appointed with the view of extending the standard procedures to include not only determination of species of bacteria, but all other lines of investigation involved in the analysis of water. Progress reports were made in 1900, 1901, and 1902, two of which were published in our *Transactions* and one in *Science*. The final report was published in 1905, as Part II, Volume XXX, of our *Transactions*. Revision has been constant, and other editions have appeared in 1912, 1917, and 1920. The fourth edition was revised by committees of the American Public Health Association, American Chemical Society, and referees of the Association of Official Agricultural Chemists.

"Standard Methods for the Bacteriological Examination of Milk," first edition, 1910; second, 1916; third, 1920. The third edition was revised in conjunction with committees from the

American Dairy Science Association, International Association of Dairy and Milk Inspectors, and members of committees from the Society of American Bacteriologists and American Association of Medical Milk Commissions.

"Standard Methods for the Examination of Air," first report, 1909; second, 1912; third, 1916.

"Pasteurization of Milk," 1920. Report of Committee on Milk Supply of the Sanitary Engineering Section.

"Model Health Code for Cities," 1921. Report of Committee on Model Health Legislation.

"Standardization of Public Health Training," 1921. Report of the Committee of Sixteen.

"An Index for Public Health Literature."

"Health Quotations."

### THE PRESENT AND THE FUTURE

Our Association is at a critical stage of its existence. As a necessary part of our growth, we have assumed many obligations, while others have been thrust upon us. We have outgrown the period when one of our members could manage our affairs from his own home or office. We have taken our place along with other great national societies, with a whole-time secretary, who is also editor of our JOURNAL, an associate editor, and an office staff. The demands upon us are constantly increasing, as a result of our growth and extending influence. It is a sign of health on which we must congratulate ourselves. Nevertheless, a greatly increased income is required to keep pace with our responsibilities.

The high cost of living has been keenly felt by us directly and indirectly. The cost of publication of our JOURNAL and *News Letter* has doubled. Salaries have of necessity been increased, though still below what they should be. In May of this year we moved our offices to New York, joining with some dozen other national organizations in leasing space in the Penn Terminal Building. Although

the unravelling of whose mysteries has meant so much to human welfare and happiness.

The Association has had a glorious past of service to the countries represented in its membership, and to mankind. In 1890, with less than 550 members, it was rated as "the largest and most influential organization in the world in shaping public-health opinions." That we have maintained this position, I am confident. The five thousand who now share the privilege of membership are the trustees of the future. We owe a debt to those who have wrought and passed on, which can best be paid by maintaining the standards set by them and by following their example of unselfish devotion to the welfare of our beloved Association.

We cannot, if we would, stand still and point to our past achievements *Noblesse oblige*. Our path leads forward, and the difficulties which confront us at this time must serve to stimulate our efforts to even greater accomplishment for the future.

The needs of the Association\* were clearly and forcibly set forth by President Rankin last year. He showed the possibilities of a popular health magazine, and urged a change of attitude to the public. "The time is at hand," he said, "when the public are no longer to be thought of as beneficiaries in the public-health movement, but are to be trusted as participants." I can do no better than endorse these words, and urge that the Directors take active steps looking to the enlargement of our membership according to the general plan outlined, the chief features of which are a national parent organization, with state and county societies in close affiliation, all bound together by a common object—the conservation of human life—and kept in constant touch with each other through the medium of a great public-health magazine. So may we prove ourselves

worthy of our trusteeship, and erect to those who builded our Association and passed it into our hands a memorial worthy of their high aspirations.

In bringing this address to a close, it would be a grateful task to tell something of the history of those who have contributed conspicuously to the success of the Association. It has seemed possible, however, to do this only in the case of a number of our former presidents, and, with the single exception of Dr. Stephen Smith, our first president, the biographical sketches must be confined to those who are no longer with us.

If it should be felt by any that invidious distinctions have been made in speaking of some when all could not be included, I beg to remind such

"that in science, at least, great names are landmarks; and the owners of these names have traversed and gleaned in fields where many a devoted laborer has delved and sown, and pathetically sweated blood in his altruistic zeal. In science, at least, no man works in vain. Full many a one, worthy of an elegy, has given his whole life to establishing a fact or indeed only an item to a fact; his work unrealized, ridicule and even persecution oftentimes his only compensation, throughout perhaps in the meanest destitution, yet his life and his work have been absolutely essential to the building of a mighty fabric." (Huber).

The study of the lives of our past presidents has been an inspiration, but has brought home to me a keen sense of my unworthiness to succeed them and of my inability to fill the office once held by them. Dear to me as is the honor of presiding at this fiftieth anniversary meeting, I have many times wished that this tribute might have been written by a more facile pen, and one capable of paying adequate homage to their lives and accomplishments. Whatever may be lacking in expression I trust is made up for by the love and reverence which have prompted my hand.

It is rare for a society to be fortunate enough to have present at the celebration of its fiftieth birthday its first president. Such is our good fortune. We have at this meeting the man we delight to honor

\*AMERICAN JOURNAL OF PUBLIC HEALTH, April, 1920, p. 297.

# THE RELATIONS OF BACTERIOLOGY TO THE PUBLIC

## HEALTH MOVEMENT SINCE 1872

EDWIN O. JORDAN, PH.D.

*Professor of Hygiene and Bacteriology, University of Chicago*

Read at the Second General Session of the American Public Health Association, at the Fiftieth Annual Meeting, New York City, November 16, 1921.

WHEN so much remains to be discovered and accomplished it may seem but a mode of idling away

twenty minutes to spend the time in casting a glance back over the bacteriology of the last fifty years. A survey of past progress is, however, essentially something more than a mere enumeration of discoveries or a recounting of practical triumphs, impressive and momentous as these may have been; it is the examination of the foundation of the superstructure upon which we are all builders. The attitude of the investigator has never been better expressed than in Pasteur's letter to his father: "God grant that by my persevering labor I may bring a little stone to the trail and ill-assured edifice of our knowledge of those deep mysteries of life and death, where all our intellects have so lamentably failed."

It is the most any one can do to add a little stone or a little mortar to the vast structure of natural knowledge. Oftentimes, however, stones laid by earlier builders, quite as careful and conscientious as ourselves, prove to be out of the true line, and the walls must be torn down and replaced, or the mortar crumbled, and a whole section of the building sinks under our feet. In any event, the foundations on which we build are and must be of perennial interest to us, and will continue to be examined at frequent intervals with anxious care by many scientific workers. To answer the question: Where do we go next? we must know where we stand now.

Already in 1872 the outlines of the new science of bacteriology were taking shape. Pasteur had carried out his epoch-making researches on putrefaction, fermentation, and spontaneous generation.

action. He had demonstrated the share of living microorganisms in deep-seated chemical changes hitherto deemed due to some sort of mysterious molecular transmission. He had shown that particular kinds of fermentation were accompanied by particular kinds of microorganisms. Perhaps most important of all, he had given the death-blow to the doctrine of spontaneous generation as then conceived. Pasteur had furthermore traced a disastrous disease of silk-worms to a parasitic origin and had pointed out a practical method of prevention. Before this time, too, the clear-sighted anatomist, Henle (1809-1885), had not only called attention to some striking analogies that seemed to favor the doctrine of a *contagium vivum*, but had outlined with great precision the paths along which experimentation must proceed in order to obtain proof of this doctrine. It is fair to presume that Henle's cogent mode of reasoning was not without its influence on his pupil, Robert Koch.

Before 1872, also, specific microorganisms had come to be definitely associated in the minds of some investigators with certain diseases of man and of domestic animals. The anthrax bacillus had been observed by Pollender as early as 1849, and had been declared by Davaine in 1863 to stand in causal relation with splenic fever; the spiriochete of relapsing fever had been seen by Obermeier in 1868. In the years just before 1872 particular interest had been excited in the terrible suppurating war wounds of the Franco-Prussian war, and the observation that numerous bacteria were present in the disintegrating tissues had been made by Rindfleisch, Recklinghausen, Wäldeyer, Klebs and others.



the word "bacteriology" apparently dates from 1884. The earliest courses in bacteriology in American colleges and universities did not begin until about 1884-1885. It may be added that in 1872 only four states of the Union (California, Massachusetts, Minnesota, Virginia) had established boards of health.

If we examine the reason for this period of lag in the development of the new science, we find that it was due in large measure to the difficulties of working out a suitable technique. The oft-quoted saying of Cuvier that "the first question in science is always a question of method" is well illustrated in the history of bacteriology. So long as it was difficult or impossible to identify and study bacteria in pure culture, one biological species or variety or race un-mixed with another, so long was it impossible to attain any approach to scientific definiteness. It is difficult for us to-day to realize the fog of uncertainty that hung over much of the early work with bacteria and to understand the reluctance that even good observers felt to accept at their face value the results of animal experimentation. Nägeli himself, who had shown convincingly that the active agents in infection could not be gases but must necessarily be organized bodies, who overthrew Cohn's assertion that bacteria could pass into the air with evaporating water, and who emphasized that in the phenomena of infection not only the infecting virus, but the infected organism must be considered, let himself be drawn into a maze of bewilderment concerning the transformation and transmutation of microorganisms, so that his ideas about the spread of infection, about disinfection, and about the significance of water and soil became hopelessly involved and mistaken.

"I have for ten years," says Nägeli, "carefully investigated thousands of bacterial forms, and if my view is right, then the same species, in the course of a generation assumes different, changeable, morphologically and physiologically un-

like forms, which in the course of years and decades of years, causes now the souring of milk, now the formation of butyric acid in sauerkraut, now the viscous fermentation of wine, now putrefaction, now the red coloration of starchy substances and induces now typhoid fever, now intermittent fever, now cholera."

What was the reason for this confusion and obscurity which so retarded the progress of bacteriology for a decade or more? It was primarily the lack of suitable methods for readily isolating and maintaining bacteria in pure culture. The decade, 1872-1881, although marked by the publication in 1876 of Koch's memorable work on anthrax, was largely a period of groping hesitation, but in the year 1881 Koch's greatest achievement, his invention of the poured plate method, gave that tremendous impetus to the investigation of disease of which we still feel the force. In rapid succession came the discovery of the bacilli of tuberculosis, typhoid fever, diphtheria, and other common and widespread diseases, of the micrococci of ordinary suppuration and of gonorrhea, of the vibrio of Asiatic cholera, and of many other microorganisms still to-day regarded as bearing a specific causal relation to a specific disease. One ironic observer has remarked of this period that for a time it became a kind of parlor game to demonstrate the "cause of disease" in pure culture. At all events, it is clear that the amazing bacteriological activity of the eighties and nineties was due essentially to an increased ability to differentiate and experiment with definite kinds of bacteria.

It is interesting to note the perpetual recurrence of scientific problems in a new form. To-day, after forty years of brilliant bacteriological investigation, some of us are troubled by the same perplexities that beset the investigators of the seventies. The significance of the so-called immunological varieties of microorganisms and of the phenomena of elective localization is still unsettled. To

that smallpox can be prevented by vaccination is convincing and of long standing, this disease is disturbingly frequent. In 1920 there were 57,978 cases of smallpox in twenty of the states of the Union. Vaccination against smallpox is diminishing in the country of its birth. In England and Wales, seventy-one per cent of the infants born in 1900 were vaccinated; in 1919 only forty per cent were vaccinated.

The mortality from diphtheria, which diminished greatly in the years immediately following the introduction of antitoxin treatment, has remained disappointingly high for the past ten years, in spite of the fact that bacteriological methods have facilitated correct diagnosis, have made possible a rational period of quarantine and isolation, have led to the detection of human carriers, have enabled us to distinguish between susceptible and immune children and have established a definite way of curing the disease. If in spite of all these weapons in our quiver diphtheria mortality is virtually holding its own, we must seek the explanation in some serious obstacle. Apparently we must face the fact that the majority of people, including some physicians and public-health workers, are unwilling to subject themselves or their children to slight pain or temporary inconvenience for the sake of acquiring resistance to an infection, the danger from which seems remote. The removal of this inertia or objection by a persistent campaign of education is the main hope for further advance in this direction.

It need hardly be emphasized that immunity at best is a relative and not an absolute condition, and that the acquisition of immunity on the part of the individual organism invites the evolution of greater invasiveness on the part of the parasite, so that conceivably a sort of endless naval armament competition may be set up, in which increasing strength of defensive armament is met with greater penetrative power.

A third and very potent influence that

bacteriology has had upon public-health progress is in the diffusion of knowledge about the causes of disease and about methods of avoiding infection. A generation ago highly speculative and indeed mystical explanations of the origin of disease were still current. Typhoid and diphtheria were attributed to bad plumbing, malaria to drinking swamp-water or breathing swamp-air, influenza to an all-pervading atmospheric condition which recurred at uncertain intervals. Some diseases now much dreaded, such as epidemic poliomyelitis, were hardly recognized to be of an infectious nature. Much of this vagueness has been swept away by minute and painstaking bacteriological investigation, so that the avenues by which disease germs enter the body are now generally known, the share of living human carriers in spreading disease is coming to be understood, the importance of focal infection in teeth and tonsils has been brought to light; the transmission of certain diseases by mosquitoes, lice, fleas, or ticks is matter of common knowledge and the methods of building up bodily resistance to infections like pulmonary tuberculosis are taught to school children.

A beginning has been made in evaluating the share that infections like syphilis, rheumatic fever, and scarlet fever have in producing serious injuries to the kidneys and blood vessels, which become especially manifest in later years. There is no doubt that acute and chronic infections of childhood and youth, although apparently recovered from, often sow the seeds of fatal maladies which cripple and destroy thousands in what should be the prime of life. The complexity of studies in this field may be illustrated by the difficulty in explaining the decline in mortality from acute rheumatism that has occurred during the past ten years, and the uncertainty in relating the apparent dependence of this disease on focal infection with Newsholme's observations on the occurrence of rheumatic fever in England in epidemic waves.

# THE HISTORY OF PUBLIC HEALTH IN CUBA DURING THE PAST FIFTY YEARS

JORGE LEROY, M. D.

*Havana, Cuba*

Read by Dr. A. J. McLaughlin before the Second General Session of the American Public Health Association, at the Fiftieth Annual Meeting, New York City, November 16, 1921.

THROUGH ignorance and other causes the island of Cuba, and especially the capital, the city of Havana, were considered unhealthy on account of the climate, and deadly to foreigners. The falsity of the first statement was completely shown by the climatological studies carried on, particularly by the one presented by the Rev. Mariano Cutierrez Lanza at the second scientific Pan-American Congress held in Washington in 1915. The injustice of the second is evidenced by the analysis of the vital statistics, particularly from the day that Gorgas put in execution Finlay's doctrines, which exiled the phantom of yellow fever.

The climate of Cuba has undergone no alteration whatever during these last years. On the other hand, the implantation of wise sanitary measures have placed the country at the level of the most advanced nations in these matters.

In order to appreciate this labor we must consider the growth of sanitation in Cuba during the last fifty years in the following three periods: (1) Colonial—until the end of Spanish sovereignty on January 1, 1899; (2) American—from that date until the establishment of the Republic on May 20, 1902, and (3) Cuban—from that moment to the present time.

## THE COLONIAL PERIOD

At that time there was, properly speaking, no sanitary law of a general character, and the Spanish laws put in practice here were either only partially applied or many of their precepts modified.

There existed then a Superior Board of Health, also provincial and municipal boards, but only for the purpose of consultation with the authorities.

Besides those boards the medical sub-delegates acted as auxiliary administrative officers and devoted themselves to the supervision of the medical profession. There were also visiting vessel physicians, whose duties were similar to those of our marine sanitation in regard to quarantine functions. The isolation hospitals existed only nominally and did not fulfill the duties entrusted to them.

There were also special physicians who looked after prostitution, the isolation of the insane and penal institutions, and bath physicians. The service of special hygiene, under which name was included all matters relating to the regulation of prostitution served more for graft than for true venereal prophylaxis.

The isolation of the insane was carried on under unsatisfactory conditions, and the Mazorra Insane Asylum was a place where the demented patient was locked in, with no treatment for his mental ailment.

The penal institutions (jails and prisons) were not places for correction and social improvement, but merely places where wrongdoers were shut in to bring them out later converted into masters of crimes.

The bath physicians were created with the idea that our medicinal springs should be scientifically studied; they superintended thermal stations.

The municipal sanitary service, which was established in 1871, was created to give medical assistance to the injured at the houses of relief and at the homes of the patients, provided the patients were poor. This service included, besides, the morgue, where medico-legal autopsies were performed; physicians who acted as

der to fight against sanitary neglect and who made known the principal problems related to public health.

#### AMERICAN PERIOD

At the beginning of this period, Cuba had just gone through the most tremendous crisis of her history. During the three years of the war for independence, in Havana alone 11,762 individuals died in the first year, 18,135 in the second and 21,252 in the third, making a total of 51,149, causing the respective death-rates of 50.98, 77.34 and 89.19 per 1,000.

The whole population was infected with malaria, and the exceedingly bad sanitary conditions that had existed previously became worse on account of the horrors of the reconcentration policy ordered by Weyler and the blockade during the Spanish-American War with its attendant misery and sickness.

The first sanitary measure under the American government was to clean the streets and public places. Major Davis formed a corps of medical inspectors to examine the houses and stores, and, in all, about 10,813 infected latrines were found.

On February 10, 1900, Gorgas displaced Davis and widened the scope of the sanitary works undertaken and the fight against yellow fever which had renewed its ravages. The sick were isolated and all that had contact with them were disinfected, but no positive results were obtained. Then the American commission, composed of Reed, Carroll, Lazear and Agramonte, verified the truth of the doctrines held by Finlay since 1881, that yellow fever was transmitted by the mosquito. Considering the experimental work already done, Gorgas abandoned the route he had followed till then and directed his campaign exclusively to fight and exterminate the mosquitoes. He succeeded, from February 4, 1901, when he began it, until September 28 of the same year, when the last

case occurred, in eradicating the disease which had been endemic in Havana ever since its importation from Vera Cruz in 1761.

The doctrines held by Finlay were applied by Major Gorgas and by General Leonard Wood, who, being physicians themselves, were fully able to appreciate them in their true and incomparable worth, and who, taking advantage of their teachings and applying their precepts, have covered with glory not only themselves but also the nation which sent them. They showed to the entire world the truth of what Finlay had been asserting with untiring tenacity since 1881—that is, that yellow fever could be suppressed by breaking the links in the chain represented by the mosquito transmitter of the disease from a sick man to a healthy one.

The appointment of the Yellow Fever Commission devoted to the purpose of obtaining diagnostic certainty in all the cases reported as suspected of yellow-fever contributed powerfully to this victory.

Another victory obtained in the same epoch was the extinction of smallpox, which has disappeared from Havana since July, 1900, thanks to obligatory vaccinations and revaccinations ordered by the board presided over by Dr. Valery Havard. During this period multiple orders were dictated on quarantine and immigration, farcy, prostitution, infectious diseases, markets, water sources, suppression of wells and other deposits where mosquitoes might be bred, on veterinary matters and medical practice, etc. But, chief of them all were the taking of the census, which resulted in knowing that the country had 1,572,797 inhabitants, and the promulgation of Order No. 159, dated May 17, 1902, by which the Superior and local boards of health were created all over the island, thus constituting our first sanitary code. Owing to prevalent ideas of the moment, the error was made of putting all these

two outbreaks of bubonic plague, slight outbreaks of epidemic cerebro-spinal meningitis and anterior poliomyelitis imported from the United States, and particularly the tremendous epidemic of gripe of 1918 which overran the whole world and the effects of which are still felt in the increase of general mortality.

Finlay introduced the use of antiseptic outfits for the dressing of the umbilical cord, and by that measure we have succeeded in obtaining a complete victory over that source of infection which yearly caused about four hundred deaths among the newly born, but which has now been wiped out from our vital statistics.

The death-rate, which in Spanish times was always above thirty per 1,000

in Havana, has come down to figures oscillating about twenty, having at one time (1912) reached as low as 18.10 per 1,000.

In the total for the island we do not have complete data, except since 1900, but from then on, with a death-rate of 17.82 per 1,000, it has descended to 12.96, one of the lowest registered in the entire world. This places Cuba above nearly all the nations in regard to health conditions, notwithstanding that the gripe pandemic raised the death-rate to 16.49, for it dropped in the following year to 14.30 per thousand inhabitants, which shows that Cuba, on account of its climate and its fine sanitary organization, is one of the most habitable places in the tropical regions.



## PUBLIC HEALTH PROBLEMS IN MEXICO AND THEIR SOLUTION DURING THE LAST FIFTY YEARS

Abstracted from pamphlet of the same title and read by Dr. Francisco Castillo Najera before the Second General Session of the American Public Health Association, at the Fiftieth Annual Meeting, New York City, November 16, 1921.

### GENERAL HISTORY

UNTIL the year 1872 the *Consejo Superior de Salubridad* functioned under the laws put into effect by former administrations. At that time the *Consejo* was the sole judge and arbiter on questions regarding physicians' fees and titles and had charge of all problems pertaining to the legal aspect of Medicine.

In 1872, with the idea of bettering the standing of the *Consejo*, the President of the Republic amended its powers and responsibilities. He took away its authority in matters concerning the right of practicing medicine and revising professional titles, but entrusted it with vaccination and the medical inspection of prostitutes, and increased its authority in matters of public health.

As soon as the *Consejo* was reorgan-

ized, it passed its first ordinance, which established birth registration and notification of deaths, visits to destitute patients, the compiling of vital statistics, food inspection and inspection of slaughter houses. It also revised certain laws concerning cemeteries. Later it began to initiate beneficial reforms in hospitals and charitable institutions, to organize food and drug inspection with the view of punishing falsification and adulteration, and started medical inspection of factories.

In 1885, Dr. Velasco, who had accomplished the first permanent organization of the *Consejo*, died and Dr. Licéaga took his place. He began the sanitation of cities and ports, established an institute for the prevention of rabies and began to organize a bacteriological laboratory.

the establishment of dispensaries where suspected cases might be examined and instructed to follow treatment at home under the supervision of special nurses.

This disease, perhaps on account of better hygienic conditions, has decreased as a cause of death in Mexico, but is still a serious problem. A large sanitarium for the isolation and education of tuberculous patients is soon to be built.

3. *Typhus Fever*. This disease has prevailed endemically in the Anahuac Plateau since the most remote days, and presents epidemic outbreaks.

Dr. Ocaranza has found that in the City of Mexico there exists an endemic zone of typhus. There are also small shifting foci of infection in the city which are wiped out very rapidly. And there are cases, too, along certain street-car and bus lines which threaten to become permanent.

The prevention of typhus fever was long limited to the betterment of housing conditions and streets, and to the adoption of better water works and sewerage. Physicians are now compelled to report every case of typhus. In the general hospital, infected persons are isolated.

Since Dr. Pruneda and Dr. Ocaranza began to work in the *Departamento*, the principal prophylactic measure is the extermination of lice. Care of the sick has much to do with the prevention of the spread of the disease.

4. *Smallpox*. We have not reached the point where our statistics do not show heavy morbidity and mortality from this terrible plague. It is also an important cause of loss of vision, as will be shown later. Since the time the new sanitary authorities initiated their work, vaccination stations have been increased and we hope the disease will decrease and even be stamped out.

We should not forget that the measures against smallpox carried on in former years were effective also, as will be shown in the section on blindness caused by this infection.

#### INFANT MORTALITY

Infant mortality is still very high, amounting during the last thirty years to 25 per cent of the general mortality. It is impossible to state the ratio of infant deaths to live births, because as yet birth registration is somewhat irregular.

The details of mortality in the first year of life show that the parallelism between absolute infant mortality and mortality caused by the affections of the digestive tract is very remarkable. The affections of the respiratory system stand as a second cause of death.

*Measles*. This disease is much less serious in Mexico than in many other countries, especially in England and Scotland, and its role in infant mortality is very slight. I have found that, as in all countries, measles exists endemically in Mexico.

#### CAMPAIGN AGAINST SOME INFECTIOUS DISEASES

1. *Vaccination*. The vaccine was brought to the country in 1804 when a commission came from Coruña bringing with them 26 little children in order to keep the virus alive during the trip. At first the City Council was in charge of it but in the year 1872, the *Consejo* took the work of vaccination in its own hands. Dr. Velasco made compulsory the vaccination of children during the first six months of life.

For some years physicians differed as to whether humanized vaccine or animal vaccine should be used. The opinion of some noted physicians and the discussions in medical associations resulted in the establishment of an Instituto Vacunal, where people could be vaccinated with animal lymph at will. Now vaccination is carried on exclusively with animal lymph.

2. *Preventable Blindness*. According to statistics of the National School for the Blind (1870-1918), 52.58 per cent of the inmates had lost their sight on account of ophthalmia neonatorum, and

welfare of our children and the reduction of our high infant mortality when nations as cultured as France received their first lessons in these subjects from the United States during the world war. On September 11, 1921, however, at the initiative of Dr. Malda and Dr. Pruneda, the Department opened its first Baby Week. The patio and ground floor rooms of the administrative building were fitted up with ample booths for exhibits especially prepared for fathers and mothers on eugenics, pre-natal care, infant mortality, diseases of children, care of the baby, including clothing, feeding, bathing and sleeping arrangements, and care of the eyes and teeth. Other exhibits of great importance were those on milk, on flies, on the effect of poverty and defective housing on the children subjected to them, on the special disadvantages from which country children suffer, and on the welfare activities in operation in Mexico and in foreign countries with special reference to clinics and public health nurses.

Many practical demonstrations supplemented the posters and every day of the week had its special program. The Department hopes to take advantage of the deep interest awakened this year to begin a permanent program for the welfare of the children of the country, and next year it will establish a division of child welfare.

#### PARENT ORGANIZATION AND WORK

At the present time hygiene and public health are in the hands of the *Departamento de Salubridad Pùblica*. The old *Consejo* continues to exist as an advisory body within the Department and in some cases as executive board. Its authority in case of epidemics and in combating such social evils as alcoholism and the use of other drugs extends not only to the federal districts and territories, but to all the states as well.

The administrative affairs of the Department are in the hands of a secretariat. The president of the *Consejo* is

appeared May 22, and the last one October 20, 1920. There was a total of 61 cases. The plague appeared later in Tampico. The Institute of Hygiene prepared 69,640 c.c. of pest-vaccine, and the campaign against the disease was similar to that in Veracruz.

5. *Uncinariasis*. At the suggestion of Dr. A. B. Vasconcelos, it was decided to initiate a campaign against this disease which is quite prevalent throughout the Republic. Dr. Landa and Dr. Arguëllo have modeled the plan for this campaign on that used by the Rockefeller Institute in Central and South America.

6. *Rabies*. In 1887, three years after Pasteur had for the first time inoculated man with it, virus for rabies was brought to Mexico. Since then rabbits have been continually inoculated and several thousand people have been treated.

#### MEXICO

Mexico City is located in the lowest part of the valley and surrounded on all sides by mountains which obstruct the exit of waters from the rivers, rains, and the springs which gush from the lakes inside the valley. On account of these obstructions, when the heavy rains came the lakes, which are on a higher level, overflowed the city. Before the Conquest and through the colonial period this danger was the constant preoccupation of the authorities, who tried different ways of doing away with it. Their efforts, however, were inefficient and the great work of draining the valley was not planned for some time. The work was not begun till 1886 and it was finished in 1900 with an expense of about \$8,000,000.

This work prevents the inundation of the city, carries all the waste waters out of the valley and controls the waters in it.

#### CHILD WELFARE

It is hardly strange, perhaps, that we in Mexico have done so little for the

# THE DEVELOPMENT OF THE BOARD OF HEALTH AND ITS RELATION TO THE PUBLIC

FRANCIS GEORGE CURTIS, M.D.

*Health Officer, Newton, Mass.*

Address of the Chairman, Public Health Administration Section, Fiftieth Annual Meeting, American Public Health Association, New York City, November 14, 1921

FEW of us who are here to-day were old enough to take any interest in public health at the time the American Public Health Association came into existence, and of those few, fewer still had any conception of what public health would come to mean or of the important part which it would hold to-day in public affairs.

In the early days of the Association, boards of health, as the phrase is now understood, were practically non-existent, and those which did exist had little or no standing with the public. Many of the functions which they exercised would hardly be recognized to-day as belonging to a board of health.

As a rule there was no board of health as a separate department, but its functions, when they were exercised at all, were carried out by the governing body, acting as a board of health or by a standing committee on health to which were referred such few matters as seemed necessary.

The chief duties of a board of health at that time consisted in recording births and deaths and sometimes cases of disease, and if any of you have had occasion to consult the records of your own or any other city at about the period under consideration, you know how meager and unsatisfactory they are.

As an illustration of the lack of interest taken in such matters, the following extract from the inaugural address of the mayor of a New England city, written about six years after the founding of the American Public Health Association, may be of interest:

The City Council last year refused any and all appropriations for health purposes, and in our city the subject has as yet received so little attention that it amounts to nothing; in fact, as a city, we have ignored all the applications of the State Board (of Health) for even such statistical information as is needed for the whole community and we have no officer capable of giving the information required.

It may be, as is claimed by some, that our city is, as yet, healthy enough. To this I reply, we need a person experienced and educated in such matters, whose entire time shall be devoted to *keeping* it healthy; procuring that vaults shall have proper ventilation; that drainage shall not find its way into wells, that stagnant pools of water and many other sources of peril to health shall be cured.

All of which shows that the writer, a layman, had fairly sound ideas upon the necessity of a full-time health officer. Cleaning vaults and cesspools and the collection of house offal garbage were very important duties of a board of health in those days. In the ordinances of a small New England city, adopted less than 25 years ago, and still in effect, the duties of the Board of Health are defined as follows:

The Board shall, subject to the authority of the mayor, make all contracts and regulations for the cleaning of all private cesspools, vaults, and privies, and all such contracts shall contain the condition that such work shall be performed to the satisfaction of the Board of Health.

The Board shall have charge of the collection of garbage and shall make such rules and regulations in relation thereto as said Board shall deem expedient.



knowledge and were further restrained by public opinion which demanded that they follow the accepted beliefs. He was a bold man in those days, who dared to act contrary to the general belief, and he faced disgrace and removal if he so acted and anything went wrong.

Service on a board of health was not a pleasant duty and often exposed the man who tried to do his duty fearlessly as he saw it, to criticism and abuse, nay, even to calumny and hatred. Yet in spite of these handicaps there were a certain number of men who really loved their work, who strove to do their duty and to solve the puzzling questions which confronted them almost daily in their work. They studied the facts which they saw and tried to correlate them with existing theories and began to realize that the latter were often unsatisfactory and must be modified or discarded and that new working hypotheses must be adopted.

In this way they tried to learn something about the laws of disease, and the methods by which infection was transmitted from person to person, and so, little by little, a fact here and a fact there, they added to their knowledge and began to lay the foundation of public health work as it exists to-day.

These men were the pioneers of public health. Some of them attained great reputations, and their names are familiar to us all; others, working in less fortunate surroundings, perhaps, are less widely known and are remembered only by a few who learned from them the facts and experience leading to success in their chosen work. Sometimes in looking through a dusty report, one comes on a sentence hidden in an almost unnoticed corner and realizes that here an unknown pioneer was doing his duty and recording his mite towards a better understanding of the laws governing health.

With the general acceptance of the germ theory, so-called, boards of health may be said to have entered upon a new phase of existence and to have acquired a better standing before the public. Bacteriology, epidemiology, sanitation in its broader sense, became parts of the equipment of boards of health, and they began to slough off the non-essentials.

They learned that sewer gas does not cause disease; that fomites play a minor part in the transmission of infection; that fumigation of rooms after disease was unnecessary and useless; and that the patient was not necessarily free from the danger of transmitting his disease to others just because a certain time had elapsed since he was taken sick. It began to dawn upon them that it was better to try to prevent disease than to try to stop it after it had once started, and preventive work soon became an important function of a board of health.

Protection of water supplies, of milk supplies, supervision of other sources of food supply, became part of the routine work of the health department, and while the care of communicable disease is still a very important part of the work and must so continue for a long time to come, it may not be too much to believe that it will become less and less important in the future, as preventive work becomes more effective.

One marked difference between the health department of the present day and that of the past is to be found in its personnel. No longer is any one good enough to go on the board of health; on the contrary its personnel must be made up of trained men who are capable of handling, in an intelligent manner, the administrative and other questions which present themselves for solution.

At the present time the health department comes in close contact with

in such work. Unfortunately there is often a lack of hearty coöperation between these agencies and the local health department—a state of affairs which tends to handicap the work of both and to confuse the public.

The health department is responsible for the health of the community which it serves and should direct all health work. To do this it must get in close relation with the various unofficial organizations interested in the same work and make use of their assistance. It often happens that these can accomplish something which the health department, bound by the law, cannot, and by availing itself of their aid, a result which otherwise would be unattainable can be secured.

Finally, the health department must get in close touch with its community. Too often the public looks upon its health department as a mysterious body which, when sickness makes its appearance in a family, descends upon the unfortunates and makes them do things, the reason for which they do not understand. If the public can once be made to understand that this is not true, but that its board of health is a body to which it can turn for aid and advice at any time and which has an interest in its welfare, we may feel sure that the people will respond in a most surprising manner and will be willing to accept the leadership of the health department and aid it to accomplish its desires.



## PUBLIC HEALTH ACTIVITIES AND THE MEDICAL PROFESSION

GEO. C. RUHLAND, M.D.

*Commissioner of Health, Milwaukee*

Read before the Public Administration Section of the American Public Health Association, at the Fiftieth Annual Meeting, New York City, November 14, 1921.

THERE can be no denying the fact that the present unrest and irritability of an upset political, social, and industrial world has also reached the medical profession.

This should be of more than passing interest to the worker in public health, because, in part at least, this irritability of the medical profession expresses itself in rather sharp criticism and definite antagonism to certain, and let it be at once added, rather important and fundamental activities of public-health agencies. It seems important, therefore, that these charges be examined more closely, so that it can be better determined what action, if

any, need be taken concerning them.

First, however, it is pertinent to determine how authoritative the charges are, and to what extent they may be looked upon as representing the medical profession.

It is true, that so far as numbers are concerned, the complaint of the profession against public-health agencies does not appear very strong. However, it may be well to consider that the charges come, nevertheless, from sources that, in several instances at least, represent regularly organized medical societies; that the protest does not appear as a reaction to a purely local grievance; and that it deals with

mean a surrender of the principle and purpose of quarantine. It is merely a change of method, by means of which the final effect—that of protecting the public—is to be attained.

It has been with this understanding that the campaigns against tuberculosis, against hookworm, against malaria, against diphtheria, against smallpox, and more recently the campaign against the venereal diseases, in all of which the treatment of the individual is recognized as an important and determining factor in the prevention of these diseases, have been developed and have been carried forward. It is safe to say that there are very few, either in or out of the medical profession, who will maintain that the activities of the public-health agencies have not been amply justified and worth while in these campaigns.

The inclusion of treatment in dealing with contagious diseases as part of the legitimate and approved activities of public-health agencies, should not be difficult, therefore, to understand. There have, however, been developed within recent years, other medical activities by public-health agencies, in which the justification for action may seem less apparent, since cause and effect are in less immediate and striking relationship to one another as in the case of the contagious diseases.

These activities include child welfare, maternity, hygiene, nutrition work, dental and psychiatric clinics, together with all the activities that are usually included under the term "school medical inspection." The justification for the inclusion of these activities by public agencies in health work is based on the conviction that human life has an economic value to the state, and that the state, therefore, must be interested in the protection of that life.

The thought really is not so extreme as it may appear at first reading. On

the theory that an educated citizen makes a better citizen, the state requires compulsory attendance in schools maintained and operated at public expense. It should not be difficult to understand then a policy under which the health of the body and the soundness of the mind of the child that is sent to school becomes also a matter of concern to the state. If the state has made an investment in the education of the child, it seems only good business that the state should take care that it will realize on this investment by preserving and developing the life of this child, so that it may grow to maturity, and by its labors in turn contribute to the commonwealth, to which it owes its education.

On the same theory of the economic value of the human life, it seems good reason to see to it that a child be born in the best possible condition of health. This means maternity and infant-welfare clinics, where mothers can be instructed in the hygiene of motherhood, and where mothers can be told how to keep their babies from becoming sick. On the same grounds the public dispensary system is justified, not as an institution of charity, but as a legitimate agency of defense of the public against economic loss through sickness of the wage-earner.

It would carry us too far afield if we should elaborate here on the monetary loss that is occasioned for the community through sickness of its wage-earners. Particularly where such sickness is of long duration, and the sick person becomes a charge upon the public, do these monetary losses become very important.

Obviously it is to the greatest interests of the community and the state if the health of its citizens is kept at the best possible working efficiency. If this can be secured by timely advice on matters of personal hygiene, or even

to accept service on that basis as soon as the profession is able to meet the demand.

Nor will this mean a practice in unwarranted competition with public-health agencies, if these agencies confine their service, as at present, to the needy and the indigent. Even in preventive medicine, as applied to the in-

dividual, the best results undoubtedly will be obtained where the personal history and the family history can be closely studied. This intimate detail work, therefore, will probably always remain the unchallenged province of private practice, which must supplement the mass effect sought by public agencies.



## REPORT OF COMMITTEE ON NARCOTIC DRUG ADDICTION

Presented before the Joint Meeting of the Public Health Administration, Food and Drugs, and Laboratory Sections, Fiftieth Annual Meeting, American Public Health Association, New York City, November 17, 1921, and adopted by a majority vote of those present.

**Y**OUR Committee has given careful consideration to the present-day opinions, as represented by American and European publications, on the question of drug addiction.

The original Harrison Law, with its later modifications and its various interpretations, has been critically examined.

The differing ideas as to the classification of addicts, their total and relative frequency, the dangers to the community arising from their existence, and the present and proposed methods of treatment have been investigated.

Consultations with administrators and physicians of all colors of opinion have added to its information, and have assisted in crystallizing its ideas.

As a result of this study your Committee begs to report as follows:

The group of addicts variously spoken of as criminals, degenerates and feeble-minded is unwilling and unable to cooperate in the necessary treatment, and should be kept under official control. In the opinion of your Committee, the control of this group is essentially a police problem.

The group of addicts who suffer from physical conditions necessitating an indefinite continuance of their use of the drug constitutes a medical problem.

Furthermore, the group of addicts in

whom the clinical condition, which was the reason for beginning the use of the drug, no longer exists, or who began the addiction for other than clinical reasons, is also a medical problem. *These three groups, which include all addicts, do not constitute a public-health problem in the ordinary sense of the word.*

Your Committee feels, however, that in so far as *prevention* of new drug addiction may be considered as a public-health problem, there are two points it would urge:

First, that international measures leading to the reduction of the uncontrolled supply of drugs be taken.

Second, that the importance of the education of the physician as to the dangers of inducing addiction through medical practice, and as to the best methods of avoiding such dangers, be emphasized.

In view, however, of the present unsatisfactory state of this medical problem, and of the very diverse opinions existing as to its bearing upon legislation and police regulations, your Committee believes it to be to the public interest that a research Committee of clinicians, biochemists, and psychiatrists should be appointed with official sanction, to investigate all phases of the question and thereafter to make an authoritative pro-

cation which required the making out of a tripartite prescription blank.

In our courts, due to that statute, we had an investigation made, with the result that the bill was adopted. It was the consensus of opinion of the joint committee of lawyers, doctors, and judges, that the report of Senator Whitney should be adopted. After this bill was passed, the cases dropped to 540.

In 1918 a new law was passed which went into effect in 1919, and notwithstanding the fact that the law made regulations, right on top of that came regulations that were made by the power appointed under the statute. In other words, the federal government makes regulations through the Commissioner of Internal Revenue, and in our state we have a Commissioner of Narcotic Control.

What I am about to state is not a criticism. When the law went into effect, the Department of Health persuaded the authorities that the best thing to do was to have a registration of the individuals who were subject to narcotic influences, and the putting into operation of this registration caused the people to collect in New York and to wait in line to be registered, so as to get their daily quota. It was properly decided that there would not be given a continuance of the doses, and that there would be a reduction, but this reduction was made arbitrarily from day to day. In other words, rules were taking the place of medical science.

That is what happened, with the result that there was immediately an increase in the number coming into our courts, because the people started to get drugs illicitly. It follows that where you prevent the medical profession from exercising its true function, the peddler will get busy, and the person desiring to obtain the drug unlawfully will get it, no matter what he has to do, and he will thus be classed as part of the underworld when he is nothing of the sort.

You men know that a number of these drug addicts cannot be classified as degenerates. A number of them are the victims of ignorance of the qualities of the drugs that are being administered. Many years ago heroin was given for headaches, and people could buy it in drug stores without interruption. On top of that, the number of men who were drug addicts in the underworld increased. The opportunities of obtaining drugs illicitly increased. The addicts of what we might call the upper world got the drug anyhow. They went outside of the city to get it, and in the next year they brought something entirely new on us, a bill which was intended to prevent a doctor from prescribing drugs for the treatment of drug addiction.

This was intended to prevent a doctor from treating. In other words, it was the purpose of the law to enforce and make mandatory, treatment in hospitals. That would mean what? In the city of New York we have 40,000 drug addicts. Have we got hospitals to put them in? No. The Smith Bill would have contemplated that. And they said something about

contagious or infectious diseases, and gave the power to treat addicts as if they were infectious diseases.

They repealed that law, and left us in the state of New York without a law to stand on. The result is that we had to proceed without a law. The doctors were intimidated. There were two men in the District Attorney's office that told the doctors that the only way that the law could be interpreted was that they could not exercise their profession at all, unless it was inside of a sanitarium or a hospital, which is absolute nonsense. And one man of the Board of Health has fostered this, and some one outside has fostered it, and I believe he is a fanatic. The law was repealed. We got a Sanitary Code amendment.

Because I have been eight years working on this situation at the head of a committee, I have naturally imbibed some pretty strong convictions, and I do not want to give the impression that I am not open to reason. But I think that my views on the subject have been substantiated by events.

Between a certain date in May and a certain date in July of this year we did not have any law at all. The Harrison Law operated in this state as well as others, but they could not seize for possession. You men in New York City know what the slums are. But you men outside have no idea what a harvest the peddler reaped in that time, and what schemes they resorted to in the way of smuggling in the goods and the prices that they exacted.

On the 25th of July we managed to get a local statute or health ordinance adopted. The cases increased from fourteen in June to ninety-four in July and three hundred and sixty-four in August, and then dropped to two hundred and one in September, and a hundred and ninety-one in October.

So that the facts are these: Under this new ordinance the physicians had the right to practice and to treat drug addiction, provided they adhered to the Harrison Law. In the law which the committee proposed, we told what the doctors might do, and said that they could practice and the kind of prescription blanks they would have to use, but that was cut out. And then came the false and erroneous interpretation, telling the doctors that they could not do what the Harrison Law told them that they could do, and that they had to accept the interpretation of two men in the District Attorney's office. These men said that you cannot treat if you have an ambulatory practice; that is, that you cannot give ambulatory treatment. That is wrong.

I have been told that in the amendment of the federal regulation they give thirty days. Medicine has ceased to be an abstract science. A man who is an internal revenue officer can fix by statute how long it should take. After all, what are these regulations for but to cure the social evil? I have read the report of some associations with which I had been associated, men engaged in the crusade against the drug evil, and I was astounded that they took the side that they did, and my impression is that

lem that I have heard in any medical society in this country.

I have been associated more or less in a legislative way with this question for the last eight years. And there are two contending forces in this country, neither of which is right. Because neither of them are basing their statements upon real facts and statistics and study.

So far as I know, there has not been in this country an honest, clinical investigation of the drug addiction problem, whether it be a disease or a habit. There has been some investigation on the Continent. But none of the investigations in the United States have been at all conclusive, and especially is that true of the latter ones.

Before you can discuss this problem, you must know whether the addict is merely a person with a vicious habit, or whether as a result of taking into the body of doses of a drug, that that individual has developed pathological physiology. If that question is not determined, you do not know what the question means as a medical problem. The police problem is a separate and distinct problem, and must be dealt with in an entirely different manner.

This Committee's report asks that the questions be investigated, and I believe that we will waste no time, but that time will be gained if this investigation is carried on. I am not stirred, I am not moved by the talk of 10,000 or 40,000 addicts in the city of New York. I remember five years ago when the question was before the legislature that the statement was made that one-fifth of the population were addicted to narcotic drugs. As these questions are investigated, they dwindle until we come to the estimates that we hear this morning, which are probably more or less near the truth.

I want to, in proof, read you a recommendation that I made this spring in the discussion of this matter before the Medical Society of the State of New York. It was a discussion of this bill of which Judge Collins spoke, which prohibited the treatment by any physician of any persons who had narcotic addiction, outside of the hospital or institution. I stated that this bill is not a local one. The attempt is being made to have the regulation promulgated by a federal bureau, to give that act the same force as this bill had, if it became a law. Within the last two weeks that bill has been put into effect by the regulations of the Bureau of Internal Revenue.

I confess I agree with Judge Collins that without any question the treatment administered to the two classes of addicts must be essentially different, and roughly addicts can be divided into two classes, the criminal and the non-criminal classes. Without any question, the only way a criminal addict can be controlled is in institutions, and even after, it seems there are instances of relapses. The Commissioner of Health of the state of New York says that over 90 per cent of all the cases of drug addiction relapsed, and when Governor Miller asked Commissioner Biggs

whether he himself knew of a case of drug addiction being cured, he said: "I do not know."

If that is true, who is responsible? The medical profession is responsible. We have had the drug problem on our hands for a number of years. Have we attacked the problem as we should attack it, or are we going to consider this thing as the venereal-disease problem was considered up to five years ago, as a moral question and not as a medical one?

DR. ERNEST S. BISHOP: I repeat the endorsement of the report. I agree with the previous speaker that it is an absolutely scientific report. You do not know how you are going to handle a thing until you know what it is that you are going to handle. I agree with Judge Collins that we have an entirely different problem in the two different classes of addicts sociologically separated. I do not believe any man is in the position to-day to speak *ex cathedra* and ultimately as regards addiction and its ultimate characteristic. In my writings, as everybody knows, I have regarded addiction *per se* as a body condition. I have called it a disease. I believe it is a disease.

But I do not believe that in the case of the underworld, in the case of the man who is a menace, sociologically speaking, that this disease problem is the main thing, and I do not believe that in the man that is not of the underworld, that any other indication is the main thing. I do believe that eight years' experience has proved that. We have been through eight years of all kinds of experiments. We have tried every possible experiment in the last eight years. We have tried all kinds of determinations on the ground of narrow lines and have failed. We have tried on the broader lines and they have failed, and the trouble is that we have to strike in the middle of the rope. We have to treat the criminal as a criminal, and we have got to handle the peddler, and we have got to study the problem.

We have used words loosely. We have used the word "cure." We do not know what cure is. We have not arrived anywhere. Is an addict cured after you have taken him off his drug, and for how long is he cured, or is he not cured? You can ask that question of typhoid, and you have to answer your addiction idea as you have got to answer your typhoid question. He is cured when he is cured, and until you understand your condition, you do not know whether he is cured or not. You have no basis of judgment.

There are arguments on every point in this thing. There is not a point that you can bring up, over which you cannot scrap. And that has been the trouble all this time, that we have not been working, but we have been scrapping.

DR. M. P. RAVENEL: I was delighted to hear Dr. Emerson second this motion. It is opposed to the report made before the Council of Health and Public Instruction in the American Medical Association, of which committee Dr. Emerson was a member.

That committee of the American Medical

cures for the opium habit had opium in them, or had the drug which they pretended to cure.

The Food and Drugs Act covers the idea that a product is a drug if it is intended for the cure of a disease. It was not very difficult to handle soothing syrups on that basis because many of them were used to a certain extent to treat certain abnormal conditions in children. We proceeded against those products and we have a thoroughly creditable piece of work to our credit.

Then came up the preparations which I have indicated, of which there were twenty alleged cures for drug addiction. We entered into correspondence with these people, and found exactly what they were doing. Dr. Wiley was in charge of the work. I told the proposition to him. He said: "Here is the situation. These people are pretending to cure drug addiction in all phases with the very drug that they are trying to cure right in the treatment itself. Drug addiction has not been considered by the medical profession as a disease. There is some doubt about it." He said: "I shall decide in favor of protecting the public," and he said, "Go to it, and clean them up," and we cleaned them up. They soon stopped sending those products into inter-state commerce. We were able to get at them through the law which prevents the misuse of the mails. However, it is sometimes very difficult to reach these products, because they are distributed all over the country.

Then we brought the matter to the various departments in the various states and told them what was in these things, and suggested to them the denial of the mails, and it was done. That cleaned up the business.

Now, regarding the pity for some of our medical men, I want to say that while the vast majority, in fact 99 per cent of the medical men, are practicing their profession honestly, the men that we have the most trouble with in our work are medical men. They are the ones that fought us regarding the enforcement of the law, and they carried the case to the Supreme Court, but they lost and that ended the business.

I am interested in Dr. Emerson's idea not to put the enforcement of this problem into the Treasury Department. I came fairly closely in contact with these officers and they have no desire to have that law. It is distasteful to them. It is an unpleasant thing, and if anybody knows where it can be handled better, where it can get better results than those obtained by the Treasury Department, put it there, because they will be only too glad to get rid of it.

DR. C. E. TERRY: I just wanted to state that about six months ago there was organized in this city a committee known as the Committee on Drug Addictions. The field of that Committee was somewhat along the lines suggested in the report by Dr. Perkins, namely, to make a broad, comprehensive study of all the facts and alleged facts relating to drug addiction and its medical, social, and other aspects.

The Committee is composed of Dr. Katharine B. Davis, who was formerly Commissioner of Correction of New York City; Dr. Thomas W. Salmon, Dr. William F. Snow, Dr. George W. McCoy, Mr. Willard S. Richardson, and Mr. Raymond B. Fosdick, and this committee is searching through medical and other literature, through questionnaires, through every possible source of information, for data on this subject, which will lead to a sane and rational consideration, and will be of help to the Committee and to the public.

The Committee desires that members of this Association who have material of interest in regard to this subject, kindly submit this material to the Association. It will be of the greatest help to us in solving this problem.

The foreign medical literature is gone into exhaustively, and a great many facts, not published in this country, and not known, are being uncovered and accumulated.

The non-partisan study of the situation is exactly what the Committee had in mind when it began this work, and I would thank the Association very much indeed if they would submit to the Committee any material that it might be able to use.

DR. JOHN P. DAVIN: I want to congratulate the American Public Health Association upon the report that has been submitted to it, and which has been so well seconded. I think it will make a monumental mark of the fiftieth anniversary of the foundation of this Association under the head of our beloved Dr. Stephen Smith.

You have placed the matter where it belongs. Three years ago, at the American Medical Association, I asked Dr. Guiteras of Cuba: "How do you solve the drug problem of Cuba?" He said, "We have a medical profession, and we have the police." In the United States we have a medical profession that is somewhat afraid; we have a pharmaceutical profession that is struggling to keep itself alive, and we have a police about which there are various opinions.

I want to protest strongly against putting this burden on Congress. Congress to-day is struggling with the momentous question of whether the physician should prescribe a bottle of ale or stout for his patient. It has also the question of maternity in consideration. A long time ago a certain man said, "Suffer the little children to come unto me." Congress asks to have the baby unborn brought into their care. Do not ask Congress. We have all kinds of associations and assemblages battling with this question. The last one, if I may state it, is the K. of C. and they are going into the question of solving the drug problem in institutions under the leadership of a distinguished attorney. The trouble has been that we have had too much district attorney. We have not gone to the trouble of investigating what has been done in Europe in regard to this problem, and consequently we have gotten nowhere. If we would do something of that sort and find out what Europe has been doing, it might be of great help.

The trouble is a purely American trouble,

turer. The creation of this demand has been and will remain an educative effort on the part of nostrum promoters. In order to combat this policy, it will be necessary for health agencies to educate the public concerning the nostrum and its attendant evils.

The health menace in worthless and criminally adulterated and misbranded drugs and nostrums has been dimly appreciated for a number of years and has been partially met by legislation, both state and national in scope. Unfortunately, however, the effect of this legislation is not all that could be hoped for or expected of it.

The present federal food and drug act is adequate as to adulteration and misbranding, and the Department of Agriculture cannot be praised too highly for its excellent law enforcement work in the past few years. However, the federal government can control only interstate commerce, and, furthermore, vital weaknesses still exist. There is no control over newspaper and magazine advertising, and federal law cannot regulate interstate commerce. The present federal system of law enforcement consists in the forced correction of any adulteration or misbranding, and in our opinion, regarded as merely technical violations and infringements of drug laws have been permitted to withdraw. They have been permitted to withdraw interstate shipments which have been seized, by consenting to relabel their goods and furnish a bond for the execution of the same.

By all odds the greatest defects in drug and nostrum law enforcement lie in intra-state inadequacy and the fundamental reasons for this inadequacy are:

1. A lack of proper appreciation of the problem as a health matter.
2. State appropriations for drug enforcement already undertaken have been entirely inadequate for coping with such a problem.
3. In any enforcement program un-

dertaken, drug and nostrum control has been entirely subsidiary to food and animal feed problems, and the vital human welfare aspect has been entirely unappreciated.

4. Even at its best, intra-state control has had inadequate laboratory and inspection facilities and it is a well-known fact that a half dozen inspectors cannot properly cover the wants of millions of people.
5. In any work which has already been undertaken, there has been absolutely no control over the magazine and newspaper. Consequently, advertising has been able to extol the virtues of preparations in a way which the labels could not. At the same time there has been no penalty attached to such fraudulent advertising, since any advertising laws which have been in existence have not been enforced.

Since this committee has enumerated many weaknesses and criticised our present system, it should be in a position to offer constructive criticism and at the same time suggest a remedy for the faults which it has exposed. Several suggestions are here proposed:

1. Uniform laws and their proper administration.
2. Adequate advertising laws and restrictions.
3. Adequate pharmacy laws and a license system.

The first suggestion pertains to labeling and adulteration legislation and several phases of such legislation should be taken into consideration.

1. State food and drug laws. In quality and effectiveness of state food and drug laws, three standards may be established—good, bad and indifferent. In other words there is absolutely no uniformity in the various state codes. Therefore, it is imperative that an effort be made to make state laws more nearly uniform and at least equal in stringency to the federal law. At the present time, if



candidates according to their fitness to dispense and compound drugs.

Pharmacy boards provide that pharmacists may sell poisons to individuals only under certain restrictions. However, any itinerant vendor or grocer may sell any number of poisons, either in the form of standard chemicals or in the form of the proprietary, and sell the same with impunity; and if any accident occurs from this lack of control, local health agencies have no power of action against such vendor. Therefore, it is suggested that local pharmacy laws should be enforced by local health departments and in such an enforcement, it is self-evident in order for such agencies to exercise control, that a license system with power of revocation is imperative. Consequently, any licenses granted to dealers or manufacturers should be given only after strict inspection of the applicant's character and his mental fitness for such an occupation.

Such a measure would tend first to place the sale of drugs in the hands of men competent to handle the same, namely, the legitimate pharmacist or other qualified person. In addition to the above licensing of local pharmacies and drug handling establishments, it is advisable that any and all drugs or nostrums should be registered by the manufacturer before its sale or manufacture. The granting of such license should be predicated upon submission of label, proposed advertising and formulae. Any license so granted by a body or commission responsible to public-health authorities in the state in which such manufactures takes place should be based upon laboratory examination and specificity. If such a procedure be instituted, the issuance of licenses to retailers handling these registered products would thus be obviated. The potent argument for such a registration and license is that by this means alone may enforcement officials pass scientific judgment upon the relative merits of therapeutic agents.

It might be mentioned that at the present time

ent time drug registration is carried on in only two localities. At the present time all new proprietaries going on to the Cleveland market are passed upon by the city chemist, and at the same time it is required that formulae be submitted. This requirement is not based upon any regulation or law but is carried out because the local druggists association in cooperation with the division of health have agreed not to stock any preparation that is not submitted to the division. The City of New York also has a registration system for proprietaries on their local market.

In conclusion the committee wishes to emphasize that there should be greater cooperation between federal, state and local health associations, since it is only by cooperative effort that we may be able to wage an effective fight against this evil.

Therefore, in view of the existing state of affairs and realizing the importance of this problem, this committee advances the following resolution:

- Whereas*, no proper agency is charged with intra-state and local enforcement of laws or regulations pertaining to the advertisement of drugs and nostrums; and
- Whereas*, the present methods of law enforcement give no adequate means for control of nostrums; and
- Whereas*, the placing of the enforcement of such laws controlling the advertising and sale of these substances in the hands of state and local health authorities would effectually check this growing evil; and
- Whereas*, local and state licensing systems with revocation powers for all manufacturers and dealers in drugs, medicines and nostrums requiring rigid inspection before granting of licenses would place the necessary power in the hands of health authorities; and
- Whereas*, experience has demonstrated that all nostrums should be registered with state and local health authorities with formulae submitted or printed on the package if scientific judgment is to be passed upon their safety; and
- Whereas*, no systematic study of nostrums has been made compiling data as to
1. Inter-state laws affecting them.
  2. Intra-state laws affecting them.
  3. Local ordinances and regulations affecting them.
  4. Funds invested in manufacturing and advertising them.

Bureau of Chemistry of the United States Department of Agriculture will coöperate with all state and municipal authorities in lending assistance in such analysis. The Bureau has laboratories in fourteen different cities of the United States, some laboratory being accessible in any part of the country. It is therefore possible for state and municipal officials to obtain aid from the Bureau of Chemistry laboratory situated nearest to them. When inquiry is made concerning specific products, it is necessary that the Bureau be furnished with a copy of the label and all accompanying literature, together with any other facts at hand as to how the product is sold and used. It may then be possible for the Bureau to suggest what particular ingredients to look for and, if necessary, the methods of analysis to use when such methods are known, as well as the amount of sample necessary for analysis.

Another means by which the Bureau of Chemistry can coöperate with state and city drug officials is by the detailing of a state or city analyst to one of the government laboratories for a period of intensive training, and where it is possible to do so the latter procedure is highly desirable. It seems to me that the greatest coöperation the Bureau of Chemistry can give to states and municipalities in their drug work is this training of analysts.

The Bureau of Chemistry has done considerable work under what is called the Sherley Amendment to the Food and Drugs Act, which is the amendment which prohibits false and fraudulent claims on all labels of patent medicines. It is this type of product that I have been considering as more or less difficult of analysis and interpretation. It is to control this class of preparations that most states need better laws and assistance in more efficient enforcement.

The Sherley Amendment of the Federal Food and Drugs Act has been extensively applied to certain classes of patent medicines. The labels on most of

the venereal disease remedies and abortifacients—ordinarily called female pills—which enter into interstate commerce have been completely revised, with the elimination of practically all therapeutic claims. It is perhaps needless for me to remind you that female pills are almost always used in connection with immorality. However, there are still some of these goods on the market, and the federal government is not able to deal with them for the business is done intrastate. The venereal remedies and female pills are among the most vicious things on the market, but the Bureau of Chemistry will have considerable difficulty in completely cleaning them out unless the state and city authorities join with us energetically in a coöperative way to bring about the desired results. We must have your coöperation. And to my mind, the most effective law, not only for these two classes of preparations, but for all so-called patent medicines, is a law which will cover advertising. The federal government needs an advertising law too, but it would be just as effective and perhaps more effective if each state and city had such a law. I am talking now of a law covering all false and fraudulent claims in advertising medicinal preparations.\* The label of itself may be unobjectionable, but the advertising gives to the wording on the label an entirely new and often quite a false meaning. Many of the venereal remedies are still advertised broadcast as a cure for gonorrhea, although the label may state only the name of the preparation and nothing more. This also holds good for many patent medicines which are advertised as cures for consumption, diphtheria and all the rest of the diseases known by man and some yet to be discovered.

I shall now refer briefly to pharmaceutical preparations which are used by physicians for administration to their patients—preparations which go to make

\*There are 23 states having the "Printers' Ink" model statute and 13 other states with an amended statute which covers all false statements in advertising.

administered to the sick, a class who have a well-recognized low resistance to bacteria of all kinds.

And let me emphasize again that more effective control of drug products by the state and city governments is urgently needed. The city and state should take up this question more actively than has been done in the past; they should pass laws that will cover patent medicines and crude drugs as well as pharmaceuticals.

In conclusion, therefore, it is desirable for state and municipal drug officials to enlarge their field of activity and not

limit their efforts to a consideration of comparatively simple products, such as tincture of iodine and spirits of camphor, but to join with us, who are operating under the federal law, in our efforts to ever widen the circle of effective drug control. The Bureau of Chemistry regards it not only as a duty but as a pleasure to lend assistance by suggesting specific lines of work to be undertaken or by giving intensive training in so far as our funds will permit to such investigators as may be assigned to this most important regulatory undertaking.



## SANITATION OF BATH-HOUSES AT PUBLIC BATHING BEACHES

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*State Board of Health, Providence, Rhode Island*

Read before the Sanitary Engineering Section, American Public Health Association, at the Fiftieth Annual Meeting, New York City, November 17, 1921.

AT most of the popular beach resorts there are establishments where bathing-suits, towels, etc., together with dressing-room privileges may be obtained by payment of a prescribed fee. In a relatively few instances these bath-houses are operated by the state or municipality, the fees being fixed at such amounts as will provide reasonably good maintenance and supervision. In the majority of cases, however, these establishments are operated by private individuals or beach associations whose chief aim is financial gain. Usually there is no supervision over the kind of service furnished by such places except such supervision as is given by local police departments in the interests of public morality.

For some years a certain supervision over public swimming pools has been maintained by the Rhode Island State Board of Health by means of more or less regular inspections and analyses of

swimming pool waters. In 1919 the scope of this work was enlarged to include inspection of wading pools, and a preliminary investigation was started to determine the sanitary conditions at the various public bathing beaches. The results of this preliminary investigation indicated that there was certainly room for improvement in bathing-beach sanitation and that conditions prevailing at certain public bath-houses were far from satisfactory. During the summer of 1920, therefore, a systematic investigation was made of all such bath-houses, and the attention of the proprietors was called to unsanitary conditions wherever they were found.

In Rhode Island the State Board of Health has no direct authority to require improvements of this character, and it was necessary to devise other means to induce dilatory bath-house proprietors to clean up. For this purpose, therefore, a system of scoring the different estab-

number of public-health men familiar with the conditions in our local bath-houses, and the preliminary evaluation was then changed to conform as closely as possible to the consensus of opinion of these various men. Each bath-house was then scored on the basis of this provisional score-card and the various houses listed in the order of the number of points credited to them. Without reference to the score-card or the number of points credited, the various bath-houses were then listed in order, from best to poorest, according to the conditions which were known to prevail at each place. These lists were then compared and a reevaluation of points was made until the arrangement of houses on the basis of total points scored in each of the two main groups was in agreement with the known conditions.

We fully realize that other public-health and sanitary officials might give somewhat different weights to our two main groups, and that they might evaluate the points in those groups very differently. The weighting and evaluation which appear to be fair, so far as they apply to the conditions which prevail at our Rhode Island bath-houses, might not be fair when applied elsewhere. We, therefore, submit the score-card as finally worked out for criticism and suggestion.

METHOD OF SCORING BATH-HOUSES IN RHODE ISLAND

CONSTRUCTION, ETC.	Perfect Score
Floor. Waterproof, good—2, fair—1, bad—0. Not waterproof, good—1, fair—0.5, bad—0.	
Walls, Waterproof, good—2, fair—1, bad—0. Not waterproof, good—1, fair—0.5, bad—0.	
Light in rooms and alleys. Good—4, fair—2, deficient—0.	
Ventilation. Good—4, fair—2, deficient—0.	
Furniture reasonably dirt proof and cleanable—1.	

Cleanliness. Rooms washed out each use—3, washed regularly, swept each use—2, swept regularly, not washed out regularly—1. Not cleaned regularly—0.

Disinfection. Approved disinfectant used on floor, walls and furniture, daily—3, weekly—1, not used—0 .....

19

TOILETS.

Water flush closets, fixtures good, clean place, good light and ventilation—8. Good vault, clean place, good light and ventilation—6. Approved disinfectant used on floors, walls and fixtures, add 2. Approved disinfection of vault or other non-flush systems, add 2. No toilet, public toilet nearby, score one-half on public toilet as above. No toilet available—0. If place very dirty or unkept use negative score.....

10

SHOWER BATHS.

Showers available and sufficient—3. Foot tubs or pails in rooms if kept clean—2. Common foot tub, with running water if clean—1 .....

3

DRINKING WATER.

Bubbling fountain—3. Individual paper cups—2. No drinking water, but public drinking fountain nearby score one-half on public fountain as above.....

3

TOILET ARTICLES.

No common hairbrushes—2.5, no combs—2.5. No common drinking cups—2.5, no common towels—2.5 .....

10

SUPERVISION OVER PATRONS.

If diseased persons prohibited, according to probable effectiveness—1 to 5.....

5

with hot water and soap and drying with hot air in the latest type of tumbler dryer. In a few of the smaller houses towels, or both suits and towels were sent out to a public laundry, and in scoring such houses the effective cleansing accomplished in a first class public laundry was given due weight. As a rule towels received much more care than bathing-suits, probably because dirt and stains showed up more readily on white than they do on colored materials. A number of managers claimed that they could not wash bathing-suits with soap and hot water because the color would run. In a few places bathing-suits owned by patrons were cared for by the management and many of the women's suits of this class were of silk or other material which it was claimed would be damaged by ordinary laundry methods. Such suits of course are worn only by the owners, and the factor of disease transmission would be negligible were it not for the fact that all suits, public and private, are handled promiscuously and rinsed in the same water. Common cleanliness alone requires that all suits be properly laundered each time used.

In a few places so-called disinfectants

were added to the water used for rinsing suits. These disinfectants were either comparatively ineffective, or were used in such small amounts that they had little value. In a number of places we were informed that "germs cannot live in sea water," and that there was, therefore, no need to wash bathing-suits. In numerous other instances it was asserted that air drying and the effect of sunlight was entirely sufficient to completely kill all germ life. When it is considered that the spores of the fungi causing certain skin diseases will resist boiling for ten minutes, and that the researches of the Committee on Bathing Places show there are a large number of cases in which transmission of such disease is attributed to the promiscuous use of bathing-suits or towels, the fallacy of these beliefs is evident.

At bath house X, all patrons furnished their own suits and towels. In scoring this house it would be manifestly unfair to mark the score-card zero for the various points included under care of suits and towels. On the other hand, we certainly have no basis for assuming that care of suits and towels at this place would be any better than would be indi-

TABLE SHOWING METHOD OF SCORING BATH-HOUSES  
AT RHODE ISLAND BATHING BEACHES

Detailed Score by Points for Each Bath-House

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
Floor, Walls, etc.....	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Lighting.....	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Ventilation.....	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Furniture.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Cleanliness.....	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Disinfection.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Toilets.....	8	4	8	8	8	10	d2	0	5	4	8	10	2	10	8	8	d5	8	8	8	8	4	1	6
Showers, etc.....	3	3	3	3	3	3	3	3	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Drinking Water.....	0	3	0	0	0	1	0	0	0	0	0	3	0	3	0	3	3	0	3	3	3	3	3	0
Common Towels.....	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Common Combs.....	2.5	0	0	0	2.5	0	0	0	2.5	2.5	2.5	0	0	2.5	0	0	0	0	0	0	0	2.5	0	2.5
Common Brushes.....	2.5	0	0	0	2.5	2.5	0	0	2.5	2.5	2.5	0	2.5	0	0	0	2.5	0	0	0	0	2.5	2.5	2.5
Common Drinking Cups.....	2.5	0	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Supervision Over Patrons.....	1	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bathing Suits—Washing.....	2	7	5	12	7	2	12	10	5	5	5	2	12	2	5	2	5	2	2	2	2	2	2	2
Drying.....	7	3	8	3	6	3	11	8	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Storage.....	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Towels—Washing.....	12	12	12	12	7	12	10	12	12	12	5	7	12	12	7	7	12	5	7	7	7	2	5	2
Drying.....	7	11	8	3	6	11	8	11	6	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Storage.....	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Total Points Scored.....	68	67.5	67	65.5	64	61	59	57.5	56	55	54	54	52.5	51.5	49	48.5	48.5	44.5	43.5	43.5	43.5	39	37.5	58*

"d" denotes deduction from total score.

\*Total Score obtained by prorating other points. (No suits or towels).

# EDITORIAL SECTION

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## LOOKING FORWARD

It is both characteristic and fitting that the man who more than any other contributed to the historical development of American public-health work in the fifty years just closing, should be the first to turn his eyes toward the half century which is now opening before us, and present a definite objective for the organized public-health movement. While striplings of fifty and seventy-five swapped reminiscences about their deeds of sanitary and medical prowess, this incredible centenarian waived his opportunity for personal history, and, projecting his mind into the future, he might have said, with the narrator in "Locksley Hall"—

"Here about the beach I wander'd, nourishing a youth sublime,  
With the fairy tales of science, and the long result of time;  
When the centuries behind me like a fruitful land reposed;  
When I clung to all the present for the promise that it closed:  
When I dip't into the future far as human eye could see;  
Saw the vision of the world, and all the wonder that would be."

Dr. Smith's main proposal was that the American Public Health Association establish as its definite aim during the coming year the extension of the average span of human life in America from its present length of about 45 years to 100 years, and initiate a long-time program over a period of fifty years looking toward the realization of that ideal. President McLaughlin will shortly appoint a committee to consider this proposal, and we may expect that some formal action will be taken upon it before another year has rolled around.

The practicability of such a prolongation of life is a first point which calls for serious consideration. As Dr. Hoffman has pointed out in his paper on "American Mortality Progress" in the Jubilee Volume of the Association, the fall

average lifetime if deaths were prevented in the ratio of preventability given. The sum of these figures amounts to 14.06 years, divided among diseases of infancy (4.4 years), of childhood (1.51), middle age (6.82), and late life (1.33). The largest single additions were derived from diarrhea and enteritis (2.32 years), pulmonary tuberculosis (2.45), and lobar and unqualified pneumonia (.94).

Fisher, therefore, believes fifteen years to be a safe minimum estimate of possible prolongation of life, as it takes no account of future medical discoveries, the cumulative influence of hygiene, nor the effects upon health and vitality of eugenic propaganda. The present span of 45 years could thus be raised to 60 with reasonable effort. Whether it can be continued over the other 40 to the 100-mark, is meat for speculation. Mathematically it is plain that the progression will be geometrically retarded as the mortality rate approaches its fixed limit of "no deaths." The fight for improvement will not become easier, but harder.

And it is worth pausing a moment to consider whether the movement toward longevity must not face frankly the ultimate philosophical and ethical dilemmas which have engrossed the minds of the best and wisest of the race, from Plato to William James: "Is life worth living," and if 60 years of it are, would 100 be equally tolerable? The mere physical prolongation of life is not necessarily an unmixed good. There are involved here most profound inquiries into the significance of life and the social organization of humanity. For most people life is a losing race between ennui and the quest for "thrills." Those who have the capacity for a higher philosophy may learn something from the lifework and social purposes of Stephen Smith. In any event, health workers should realize that the years of man's life can never be divorced from the ends to which they are put.

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## SCIENTIFIC DEMOCRACY IN THE UNITED STATES

On the occasion of the now famous semicentennial dinner to Dr. Stephen Smith, the aged and venerable founder of the American Public Health Association, Dr. Hermann M. Biggs, state health commissioner of New York, devoted a part of his address to a consideration of foreign laboratories. Their number is surprising, their equipment first-class, and their work exact, but in spite of these, Dr. Biggs seemed to his hearers to convey his belief that European laboratories, from the standpoint of public health, are less used and less useful than the laboratories of America. This bears out the impression of many visitors to Europe that among the older nations science and practice are divorced. The European laboratory is for research; its character as an adjunct to popular hygiene has not been developed extensively.

The scientist in the English laboratory, for example, is well aware of the ease with which milk can be contaminated and of the dangers to children from unclean milk, but his knowledge is not applied. Milk "for infants and invalids" continues to be delivered throughout parts of London in a small pushcart containing a copper receptacle with a spigot scarcely two feet above the pavement. It is measured in a tin cup which afterward is hung by its long handle, wet and dripping, from the edge of the cart, exposed to dust and to mud-splashings. The

A BIBLIOGRAPHY OF REFERENCES  
TO HEALTH LEGISLATIONCompiled by JAMES A. TOBEY, National Health Council,  
Washington, D. C.

## FOREWORD

The following is a list of references to health legislation and matters of a closely allied nature. Only pamphlets, reprints and books are listed, no articles being included. For convenience the references are arranged under the following five headings:

1. Child Welfare.
2. Model Laws.
3. Municipal Laws.
4. Public Health (General).
5. State Laws.

Although an endeavor has been made to have this compilation complete, it is the first of the kind, and references which should have been included may have inadvertently been left out. It will be appreciated if attention is called to omissions.

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(See also under Child Welfare and Model Laws.)

## ASSOCIATION NEWS

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# PUBLIC HEALTH NOTES

Abstracts by D. GREENE, M. D., JAMES A. TOBEY and HOMER N. CALVER.

**Laymen in Public Health Work.**—Public-health work is so largely influenced—it may almost be said, dominated and controlled—by the laity, organized into many special and uncorrelated or imperfectly correlated groups, local, national, and even international, that it is no small wonder that many in the medical profession view the future with no little concern. These organizations are themselves but the offspring of public opinion, and they are found in the long run to influence public opinion. Such being the case, no one can gainsay the fact that lay organizations for the protection and promotion of public health—meaning thereby organizations into which the physician enters on the same basis as a layman—are bound materially to influence the future evolution of the medical profession, for good or for ill.

Unfortunately the organized medical profession as represented by the great national, state and county societies has either not concerned itself with the situation at all or else has not fully occupied the field, so that physicians who have interested themselves with respect to the situation have done so even as individuals, or in small groups that can hardly be said to represent fairly the medical profession at large; and too often the cause of the medical profession generally has been injured by the tactics of such detached workers and detached groups. It may well be urged, therefore, that the profession as a whole undertake seriously a study of the causes of existing conditions in so far as they may be liable to react harmfully on the future development of the medical profession, adopt a program of its own that is designed to correct such evils as may now exist, to prevent similar evils or others in the future, and devise proper agencies to procure the adoption of such a program by the laymen and lay-organizations operating in the field, of public health.—*Monthly Bulletin*, City of Boston Health Department, March, 1921.—(J. A. T.)



**A Congressional Tribute to Heroes of Health.**—The House of Representatives was recently discussing a bill to pension the widow

of Warren G. Jernegan, who, as a soldier, assisted in the discovery of the prevention of yellow fever, under Reed, Carroll, and Lazear, by submitting to various experiments. Mr. Reed, of West Virginia, spoke as follows:

"Mr. Speaker, I am bound to admit that this bill presents something different from the ordinary pension. It is true that we have a large pension roll already. The Government has very properly pensioned men who have carried our flag to victory, carried it for the preservation of the Government, of American institutions, and for the safeguarding of American civilization. The glory and grandeur of our country is, after all, found in the health, strength and the efficiency of its men and women. We hope there will be no more wars. We fervently pray that the peace conference about to meet will bring about an era of universal peace, and then, instead of pensioning the heroes of war, it will be the heroes of peace that will claim our attention; those heroes who may voluntarily give their lives that the race may grow stronger and greater. Such awards as this bill proposes present a different appeal to our generosity, and this Government can well afford to go on record as favoring a liberal policy towards its citizens who offer themselves for this unselfish kind of service. Let us hope that the American heroes of the future may be heroes of peace, heroes who give themselves that the race may be strengthened and human diseases eliminated.

"The science of medicine, Mr. Speaker, is yet in its infancy. A great deal has been accomplished. We have a wonderful America, but it would be a mighty poor America if it were peopled by a race of invalids. The wealth of America is not to be measured by her great cities, fertile farms, railroads, institutions, and industries. The real wealth of America is the health, strength and character of her men and women. The men who offer themselves as martyrs for the advancement of medical science ought to be recognized, and this Congress will make no mistake in passing this bill and by its action to-day saying, 'Thus do we honor the heroes in the interest of humanity and progress.' There will

infection, and of the toxin-antitoxin mixture for the immunization of the nonimmune.

In spite of the fact that all agencies necessary for the eradication of diphtheria from the community are available, we still have the infection mostly in endemic form. A careful study of the various factors entering into our failure to make much progress in the prevention of diphtheria brings to light the fact that not sufficient intensive work is done by public-health authorities, save under epidemic conditions. Little or no effort is expended to find the source of infection in the sporadic case, and carelessness in culturing for release of quarantine adds many cases to our yearly total. Often effort is directed to the school-age group, with resulting school cultures, while perhaps the pre-school-age group is far more likely to be the source of infection.

What is the remedy for this condition?

1. Education of physicians and the laity to the fact that all agencies are available for the immunization of the susceptible, and for the diagnosis and the treatment of the disease.

2. Intelligent study and treatment of the "carrier" or, perhaps more correctly, the "missed case."

3. Education of the laity to the fact that diphtheria is often insidious in onset and mild in course, and recovery is uneventful for the patient, yet serves as the focus of multiple infections of a far more virulent type.

4. Education of local health officers as to the necessity of intensive investigation of the source of each case, and of the necessity of immunizing other members of the infected household.—B. W. Carey, *Jour. A. M. A.*, Aug. 27, 1921, 668.—(D. G.)



**Seasonal Variation of Rickets.**—Hess and Unger show that milk from pasture-fed cows (summer milk) failed to prevent the development or to decrease the incidence of rickets during the winter. On the other hand, treatment with ultraviolet rays or with sunlight brought about calcification of the bones during the winter as demonstrated by means of the roentgen rays. These contrasting results lead to the conclusion that hygienic factors, especially sunlight, and not dietetic factors, play the dominant rôle in the marked seasonal variation of this disorder.—A. F. Hess and L. J. Unger.—*Amer. Jour. Dis. Children*, Aug., 1921, 186.—(D. G.)

**Results of Prenatal Care.**—The author describes the results of prenatal care based on 1,000 consecutive deliveries. A low infant mortality rate was obtained, and that this low rate is due largely to prenatal care is shown by a comparison of 3 series of cases. Series 1 consisted of 1,000 cases under prenatal supervision. The mortality rate in this series was 2.5 per cent. Series 2 consisted of 1,000 cases under nursing supervision of the Visiting Nurses Association with no systematic medical supervision, and the mortality rate in this series was 4.7 per cent. Series 3 consisted of 1,000 cases in which there was no prenatal care. The mortality rate in this series was 7.9 per cent.—A. C. Beck, *Jour. A. M. A.*, Aug. 6, 1921, 457.—(D. G.)



**Incidence of Hereditary Syphilis.**—This study represents an attempt to make an estimate of the incidence of syphilis based on a representative group of unselected individuals in St. Louis. An analysis of the placenta and the Wassermann reaction on the umbilical cord blood was made on a series of 2,030 unselected infants. By examining the blood of 389 of these infants after 2 months of age, it was determined that the proportion of cases of hereditary syphilis that could be certainly diagnosed by placental examination alone was 27 per cent, while from the Wassermann reaction on the cord blood, 63.6 per cent of the cases could be recognized. By applying these two methods to the entire series the number of cases of hereditary syphilis in the whole group was determined. The incidence of hereditary syphilis established by this method is 15 per cent in the colored race, 1.8 per cent in the poor of the white race, and less than 1 per cent in the well-to-do social classes. By applying these figures to the entire population of St. Louis, it is estimated that the incidence of hereditary syphilis at birth in this city is 3 per cent, of which the colored population, although only 9 per cent of the total, contributes approximately half the cases.—P. C. Jeans and J. V. Cooke, *Amer. Jour. Dis. Children*, Oct., 1921, 402.—(D. G.)



**Botulinus Infection of Canned Spinach.**—*Bacillus botulinus*, Type A, is able to multiply and to produce its characteristic toxin in canned spinach, although the development of the organism in this food product was found

on such subjects as diet, sleep, exercise, bathing, constipation, mother's supplies, baby's supplies; (6) Routine of Postnatal Follow-up Work. The pamphlet also contains illustrations of garments and other articles necessary for the baby, as well as model forms on which to keep both the baby's record and the maternity record.



#### Medical and Health Education in China.—

The formal dedication of Peking Union Medical College, which has been erected and is being maintained by the Rockefeller Foundation, filled the week of September 15-22. The program included clinic sections; sectional meetings in general medicine, general surgery, obstetrics and gynecology, pathology, ophthalmology, otolaryngology and neurology; and papers and addresses by some of the best known medical authorities of the Orient and Occident.

Concerning the work of the Foundation and conditions generally in China, Mr. Edwin R. Embree, secretary of the Rockefeller Foundation, who has recently returned from four months in the Orient, says:

"If anyone doubts the benefits of vaccination and of health regulations in general he should visit such a country as China and see the appalling results of the total lack of scientific attention to public health. Smallpox patients, with the disease in an active state, go freely about the streets, with the natural consequence that the sickness and death-rate from this disease is terrific; typhoid fever, which is being eliminated in the United States by the sanitation of water and milk supplies, is rampant in China; blindness, trachoma, and other diseases of the eye are everywhere in evidence on the city streets; anemia resulting from hookworm and other intestinal parasites seems to be well nigh universal. No one who has not seen the disease, suffering, and death among a people which neglects public health can realize the tremendous advance which has been made in America and Northern Europe through diligent, painstaking and scientific efforts towards disease control.

"The great new medical school in Peking, which has been established by the Rockefeller Foundation as a part of its program of public health and medical education throughout the world, is designed to be a demonstration in medical education and scientific approach to problems of health and disease for the entire

Far East. Its results will be measured not so much by the number of medical practitioners it turns out as by the standards it sets and the quality of the leaders and teachers which it trains for service in other institutions throughout China.

"The faculty of the College and the staff of the hospital have been assembled from America, Canada, and England, and from the increasing number of promising Chinese scientists.

"The buildings, begun in 1917 and completed this summer just in time for the dedication, are sixteen in number, including in the principal group laboratories, hospital wards, an outpatient department, classrooms, an auditorium, a nurses' home, a power plant and accessory structures. The buildings of this modern medical plant, erected on the palace grounds of an old Manchu prince, are in the classic Chinese architecture, brilliant with symbolic painting on woodwork and porches and protected by great green roofs with broad, overhanging eaves. The interiors, however, of both laboratories and wards represent the most modern development in Western building and equipment."

Mr. Embree spoke optimistically of the progress of science in China. "One must expect results to come slowly in so great and so conservative a country," he said, "but the signs of advancement are definite and sure. While the next few years are evidently going to be filled with the greatest difficulties for China politically and economically, if she can make satisfactory progress in science and education there need be no doubt of her future."

In addition to the maintenance of the college and hospital in Peking, Mr. Embree pointed out that the Rockefeller Foundation is assisting thirty-one hospitals and medical institutions throughout Eastern and Central China, and is furnishing fellowships for advanced study in America and England to fifty Chinese and foreign physicians and nurses who are to return for institutional and teaching service in China.

Dr. W. W. Peter, Secretary of the Council on Health Education, Shanghai, China, one of the speakers at the dedication of Peking Union Medical College, in his address on "Methods of Visualizing Modern Health Ideas," stated that the keynote of the educational work which had been presented to approximately 600,000 people had been the demonstrated lecture,

Child Welfare Division of the Department of Health of Canada; The Influence of Weather Conditions on Mortality and Morbidity in Early Infancy, Dr. Frederick Hoffman, third vice-president and statistician of the Prudential Insurance Company of America; The Antenatal Factors of Life and Death: Genetic, Toxigenetic, Gestational and Obstetric, Dr. C. W. Saleeby, chairman of the National Birth-Rate Commission; Ignorance as a Dominant Factor in Infant Mortality in Poland, Miss McConnell; A Comparison between Working-Class Mothers and Those of the Educated Classes, from the Point of View of Difficulty in Labor and Lactation, Dr. Gordon Ley, gynecologist, Hempstead General Hospital, and assistant obstetric surgeon, City of London Maternity Hospital; Syphilis as an Antenatal Factor in Racial Health, Dr. J. H. Sequeira, physician, Skin Department, London Hospital.

At a special medical session, organized by the Society of Medical Officers of Maternity and Infant Welfare Centers, the subject for discussion was "The Uses and Abuses of Dried Milk."

The Conference gave unmistakable evidence of the realization of the English-speaking people of the necessity and importance of conserving maternal and infant life, and brought out that fundamentally the solution of the problems of child hygiene in other English-speaking countries is the same as in America. A number of the papers indicated that the British Government is more liberal with appropriations for child health work than is the case in the United States, and also that there exists in England a closer coördination than in the United States of the activities of volunteer associations with the activities of official agencies.—Condensed from report by Dr. Taliaferro Clark, Surgeon, U. S. Public Health Service.

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**Mortality Statistics for 1920.**—The Department of Commerce announces that the Census Bureau's annual report on mortality statistics, which will be issued shortly, shows 1,142,578 deaths as having occurred in 1920 within the death registration area of continental United States, representing a death-rate of 13.1 per 1,000 population as compared

with 12.9 in 1919, which was the lowest rate since the registration area was established in 1900.

The death registration area (exclusive of the territory of Hawaii) in 1920, comprised 34 states, the District of Columbia, and 16 registration cities in non-registration states, with a total estimated population on July 1, of 87,486,713, or 82.2 per cent of the estimated population of the United States. The state of Nebraska was added to the registration area in 1920, so that at present the only states not in the area are Alabama, Arizona, Arkansas, Georgia, Idaho, Iowa, Nevada, New Mexico, North Dakota, Oklahoma, South Dakota, Texas, West Virginia, and Wyoming. The figures for the territory of Hawaii will appear in the report, but they are not included in this summary.

The death-rate from pneumonia increased from 123.5 per 100,000 in 1919 to 137.3 in 1920. For chronic diseases of the heart the rate increased from 131.0 to 141.9; for cancer, from 80.5 to 83. Some of the other diseases for which the rate increased are whooping-cough, measles, cerebral hemorrhage, congenital debility and malformations, puerperal fever, scarlet fever, and appendicitis. The fatalities caused by automobile accidents and injuries show an increase from 9.4 per 100,000 in 1919 to 10.4 in 1920.

A marked decrease is shown in the death-rate from tuberculosis, which was 114.2 in 1920, as compared with 125.6 in 1919; also in the death-rate from influenza, which decreased to 71.0 in 1920, from 98.8 the year before. The death-rate from suicide declined from 11.4 in 1919 to 10.2 in 1920. There was a decline also in the rate for typhoid fever and in that for accidental drowning.—*Science*, November 4, 1921, Vol. 54, No. 1401.

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**New York Cleanest of Large Cities.**—The Committee of Fourteen in New York City, in its recently published report for 1920, claims New York has less open vice than any of the world's largest cities. Organized in 1905 to secure the suppression of disorderly hotels, the Committee extended its work in 1912 to include all forms of commercialized vice. It was instrumental

## LEGISLATION—FEDERAL

The Journal reproduces the bi-weekly legislative statements issued by the Washington Office of the National Health Council. Copies of these valuable reports can be obtained every two weeks when they are issued, directly from the National Health Council, 411 Eighteenth Street, Washington, D. C. As Congress was in recess from August 24 to September 21, no further reports could be published until the December issue of the Journal. The present installment contains the substance of Statements Nos. 12, 13, 14.

## PROGRESS ON MATTERS PREVIOUSLY CONSIDERED

H. R. 7294. Willis-Campbell Anti-Beer Bill. Immediately upon the convening of the Senate on September 21, after its recess, Senator Sterling moved the consideration of the Conference Report on the Willis-Campbell Anti-Beer Bill. On September 22, Senator Stanley began a speech, which consumed two legislative days of the Senate, directed entirely against the adoption of the conference report unless it included his amendment, which would prohibit the search of property without a search warrant. This controversy has no bearing on the question of prohibition of the sale of beer upon a physician's prescription, this feature having the endorsement of both houses of Congress, except to delay passage of the bill. After the completion of the speech of Senator Stanley the Tax Revision (Revenue) Bill and the German Peace Treaty obtained precedence in the Senate and the Anti-Beer Bill was, therefore, relegated to an inactive status on the calendar. After numerous efforts, however, Senator Sterling, in charge of the conference report, managed to obtain a tacit understanding with the Senate leaders that the Willis-Campbell Conference Report would be permitted to come to a final vote in the Senate after the completion of action on the Tax Revision measure and the German Peace Treaty.

H. R. 8245. A Bill to Reduce and Equalize Taxation (The Revenue Bill). The Tax Bill, which has already passed the House of Representatives, was favorably reported to the Senate by the Committee on Finance on September 21. This bill, as now before the Senate, contains a number of matters of interest to health workers:

*Proprietary Medicines:* The Treasury Department recommended a four per cent tax

on the manufacturers of proprietary medicines to take the place of the present one per cent stamp tax on such articles. This four per cent tax would apply to the manufacturers of pills, tonics, liniments, salves and all medicinal preparations and compounds (excepting only serums and antitoxins). This proposal, however, was finally stricken out by the Committee on Finance, and as the bill now stands the existing stamp tax on proprietary medicines will be repealed and no tax of any kind will be made upon such articles.

*Toilet Articles:* Provision, however, is made in the bill for a four per cent manufacturer's tax on toilet articles, such as tooth and mouth-washes, dentifrices, cosmetics, etc. (Sec. 900, No. 22.) Toilet soaps are taxed 3 per cent (Sec. 900, No. 21).

*Exemption for Gifts to Institutions:* A proposed amendment, which was earnestly advocated by educational, health and charitable organizations, permitting corporations to have an exemption in their income tax returns on gifts and contributions to charitable and educational institutions, failed to meet the approval of the Senate Committee on Finance. The result of this action of the Committee will limit such exemptions to contributions and gifts by individuals within the taxable year. This exemption will be to the extent of 15 per cent of the individual tax payer's net income. In defining "Gross Income" (Sec. 213) the bill states that amounts received, through accident or health insurance or under workmen's compensation acts, as compensation for personal injuries or sickness, plus the amount of any damages received whether by suit or agreement on account of such injuries or sickness, shall be exempt from taxation, as not included in the gross income.

*Life Insurance Companies Taxed:* Domestic and foreign life insurance companies are taxed 15 per cent of their net income (Sec. 243). *Drugs (Opium, coca, etc.):* Section 1004 reenacts section 1 of the act concerning opium and coca leaves, approved December 17, 1914, as amended by section 1006 of the Revenue Act of 1918. This act requires physicians, dentists, veterinary surgeons and other practitioners lawfully entitled to distribute these drugs to register and pay a fee of \$3.00 per annum. The drugs must be used only for legitimate medical purposes and a record kept of their use.

mitted under the law, the government should be able to derive a substantial income in the way of taxes upon them.

H. R. 7369. Pollution of Navigable Waters of the United States by Oil or Other Refuse Matter. (Hearings.) On October 29, a hearing was held by the Committee on Rivers and Harbors of the House of Representatives on this measure, which was introduced on June 24, 1921. This bill would make it unlawful to discharge oil or other refuse matter into any navigable waters from any ship or floating craft.

Statements were made by a large number of witnesses that fuel oil and refuse matter are thrown from ships entering New York Harbor and that this fuel oil sinks to a considerable depth in the ocean, is washed up on the Jersey coast, destroys fish in enormous quantities, imperils the oyster and clam industry and pollutes the beaches to such a degree that bathing becomes unsanitary, and that the value of real estate on the northern New Jersey Coast is seriously depreciated. The witnesses included representatives of New Jersey shore and fisheries interests, and of commercial oil and chemical concerns.

H. R. 8783. Forbidding Deposit of Noxious Acids and Acid Materials in Navigable Streams. Introduced by Mr. Rosenbloom of West Virginia, October 20, 1921. Referred to the Committee on Rivers and Harbors. The bill is an amendment to the Rivers and Harbors Act. For the purpose of preserving the public health it forbids the deposit of acid or acid waste or any material which will become acid after being in the water. It is aimed chiefly at the dumping of refuse from active and abandoned mines and factories which are engaged in manufacturing enterprises using acids as products.

H. R. 7746. Regulations for Sale of Milk in the District of Columbia. (Hearings.) Charges that a large portion, if not all, of 7,000 gallons of milk diverted from Washington distributors on October 21, the day on which a milk war was started in the District, was thrown into the sewers by the Maryland-Virginia Milk Producers Association were made by Charles W. Darr and M. E. O'Brien, representing distributors of 65 per cent of the milk consumed in Washington, before a subcommittee of the House District Committee on October 31, 1921.

Mr. Darr told the subcommittee that on average for medicinal purposes is to be per-

of intoxicating liquor in excess of the amount necessary for medicinal purposes. Physicians can not prescribe for their own personal use.

c. A label must be affixed to the container of liquor sold on a physician's prescription, giving names of physician, patient, and drug, kind and quantity of liquor, and directions for use.

d. The right to prescribe distilled spirits, wines and malt liquors for medicinal purposes is confined to such physicians as have obtained permits. Such a physician may prescribe for a person upon whom he is in attendance, if after a physical examination is impractical, upon the best information obtainable, the physician believes that the internal or external use of such liquor as a medicine by such person is necessary and will afford relief to him from some known ailment.

e. No greater quantity of intoxicating liquor than is necessary for use as a medicine by a person can be prescribed in the treatment of an ailment from which such patient is known by the physician to be suffering.

f. Spirituous liquors are limited to one pint within any ten days' period. Alcohol for external use is limited to one pint for the same person at one time.

g. Two quarts of wine is the limit put upon a single prescription for that beverage, but otherwise the regulations are the same as for beer.

h. The amount of beer a physician may prescribe at one time for the use of the same person is  $2\frac{1}{2}$  gallons, but no arbitrary limit is placed upon the number of prescriptions a physician may write or the same person may obtain within a given period.

i. Separate prescriptions shall be used for spirituous liquors, wines and malt liquors.

The only states which do not have laws prohibiting the use of wine and beer as medicines and so are affected by these regulations are Wisconsin, Missouri, California, Connecticut, Massachusetts, New Jersey, New York, Rhode Island, and part of Louisiana and Maryland.

Senator Wadsworth of New York has introduced an amendment to the revenue bill now before the Senate, levying a tax of 60 cents per gallon on beer, \$1.20 per gallon on wine, and \$6.40 a gallon on distilled spirits. The Senator takes the stand that since the sale of these beverages for medicinal purposes is to be per-



of Arkansas, October 7, 1921. Referred to the Committee on Interstate and Foreign Commerce. This proposed act is an amendment to the Veterans' Bureau Act, the principal changes from the original law being the extension of full powers to the regional offices of the bureau to hear complaints of ex-service men, award compensations, grant medical, surgical, dental and hospital care, convalescent care and make insurance awards. The bill provides that the action of these regional offices shall be final, except in cases where the claimants are aggrieved. Then only can an appeal be taken to the central office at Washington. The regional offices may also delegate to their sub-offices such powers as they see fit. By the provisions of the bill, a regional office would be established in each state, and sub-offices not to exceed 140 in number.

S. 2458. \$5,000,000 Hospital for Veterans Suffering from Nervous or Mental Diseases. Introduced by Senator Stanley of Kentucky, September 21, 1921. Referred to the Committee on Finance. This measure appropriates \$5,000,000 for the purchase, construction or acquisition by the Director of the Veterans' Bureau of a new hospital to be used for the treatment of ex-service men suffering with nervous or mental diseases. A provision suggests that the proposed hospital be located in the District of Columbia, but this site is not mandatory, so that it is possible to locate the hospital anywhere in the United States. Immediately after the introduction of the bill in the Senate an agitation was started to have the hospital, provided the measure succeeded in passage, placed in the District of Columbia. Director Forbes of the Veterans' Bureau issued a public statement in which he declared that he favored the location of the hospital in the City of Washington or in close proximity to the national capital.

H. R. 8791. Appropriation of \$16,000,000 for Construction of New Hospitals for Veterans. Introduced by Mr. Langley October 21, 1921. Referred to the Committee on Public Buildings and Grounds. After many consultations with Director Forbes of the U. S. Veterans' Bureau, officials of the Treasury Department, and American Legion officers, Representative Langley, chairman of the House Committee on Public Buildings and Grounds, introduced in Congress this measure which, it is claimed, will furnish sufficient hospital facilities for the care and treatment of disabled ex-service men of

the World War for an indefinite time in the future. The bill carries an appropriation of \$16,000,000 to be used for the construction of new hospitals, and the improvement of institutions already owned by the government, the expenditures to be made at the discretion of the Director of the U. S. Veterans' Bureau. A provision in the bill stipulates that \$500,000 of the total sum shall be used for extending the facilities of the U. S. Public Health Service Hospital, Number 32, located in Washington, District of Columbia. This appropriation makes a total of \$34,600,000 appropriated for hospital facilities, the sum of \$18,600,000 being carried in a bill passed at the last session of Congress.

H. Res. 195. Investigation of Consultant Board for Selections of Sites for Hospitals. Introduced by Mr. Fitzgerald of Ohio, October 10, 1921. Referred to the Committee on Rules. This resolution provides for the appointment of five members of the House to investigate at once the actions of the Consultant Board or other assistants appointed by Secretary of the Treasury Mellon for selection, purchase and location of sites for new hospitals and improvement of former hospitals with the \$18,600,000 appropriated by Congress at its last session. All facts in connection with the activities of this Board are included in the questions to be investigated. The members of this Board comprise several leading physicians of the country, selected by Secretary Mellon, including Dr. W. C. White of Pittsburgh, chairman, Dr. Frank Billings of Chicago, Chancellor John G. Bowman of Pittsburgh, and Dr. George H. Kirby of New York. The consultant hospitalization board up to this time has recommended the expenditure of half of the \$18,600,000 on the construction of additions to hospitals already owned by the government.

H. R. 8566. To Recognize and Promote Efficiency of the United States Public Health Service. Introduced by Mr. Dyer, October 10, 1921. Referred to Committee on Interstate and Foreign Commerce. The bill provides that not to exceed five hundred and fifty officers of the Reserve Corps of the Public Health Service, including fifty dental surgeons and fifty scientists other than medical officers, may be transferred to and commissioned in the regular corps of commissioned officers of the Public Health Service by the President and by and with the advice and consent of the Senate in the grades of assis-

culture now requires that anyone who wishes to import cattle, sheep, goats, swine, or other animals from any country, except Canada or Mexico, must first obtain from the Secretary of Agriculture a permit, to be presented to the American consul at the port from which the animals will be shipped. No permits are issued for shipment from countries where these diseases are prevalent.



## STATE HEALTH NOTES— GENERAL

**Illinois.**—In view of the fact that Illinois now stands alone among Northern states east of the Mississippi that have not qualified for the United States Birth Registration Area, the State Department of Public Health is planning to carry out a drive for securing complete birth reports. To this end Director of Public Health Rawlings recently held a conference with the State Registrar of Vital Statistics and an official from the Federal Bureau of the Census to outline a campaign. From information reviewed at this conference it appears that twenty-nine counties out of the 102 in the state, and fifteen of the more populous cities are now largely responsible for the delayed and incomplete reports that keep Illinois ineligible for the Area. The best of these counties and cities are 20 per cent deficient in their birth reports, while the worst are more than 40 per cent deficient. In the campaign every possible means will be employed to obtain the coöperation of physicians and others in securing prompt and complete reports, but when these methods fail to bring results the offenders against the law will be prosecuted.

The popularity of the health exhibits owned by the State Department of Public Health continues to find expression in requests for their use in connection with prominent events throughout Illinois. Since July 1 they have been displayed at the "Pageant of Progress" in Chicago, the State Fair in Springfield, and at eight county and local fairs. In addition to this, a special exhibition was given at the University of Urbana in connection with the annual meetings of the Better Community Conference, the Illinois Tuberculosis Association and the State Library Association, and at Rockford in connection with a local "Pageant of Progress." It is estimated that a total of

between two and three million people saw the exhibits on these occasions.



**Indiana.**—The Indiana State Board of Health instituted a new division of the Board October 1, known as the Housing Division. The director is W. F. Sharpe, an architect of reputation. He is assisted by Albert E. Wert, who has had experience in housing work in New York City. This is the fourteenth division attached to the Indiana State Board of Health. Tenement house surveys will be made in the large cities as rapidly as possible and exact conditions reported. All plans and specifications made by architects for hotels, lodging houses and tenements must be submitted to the State Board of Health for approval.



**Michigan.**—According to records of the State Department of Health, the average length of life in Michigan in 1872 was 24.1 years, while the average length of life now is approximately 41.6 years—a gain of 17.5 years. In 1872, 42 per cent of all deaths occurred among children less than five years of age, and 50 per cent of all deaths occurred before the age of 14. In 1919 only 23 per cent of the total number of deaths was among children under five, and 50 per cent of the total was not reached before the age of 42.

One divorce for every six marriages is Michigan's matrimonial story for the years 1918 and 1919, as recorded by the Division of Vital Statistics of the State Department of Health.



**New York.**—The Teachers Union of New York City is making a study of physical conditions in New York City schools based upon reports by members in 61 school buildings. The study is not being made to discredit any municipal or educational official, or to promote the political interests of any individual. The Union is not a political organization, and is interested merely in raising the standards of civic life in the particular branch of work in which the members give their service. Reports are to be published on cleanliness, drinking water and lunch rooms, noise, ventilation and heating, lighting, general conditions, and recommendations for improvement.

# INDUSTRIAL HYGIENE AND OCCUPATIONAL DISEASE

Abstracted by DRs. E. R. HAYHURST and E. B. STARR.

**Skin Diseases Among Printers.**—The investigator reviews the literature in brief on this subject. The scope of his own investigations covered the methods of plate printing, the process in which the dermatosis occurs, the materials used, the methods employed in removing the inks, physical examination of workers, analyses of inks, oils and soaps, and experimental work on volunteers. The conclusions are as follows: the inks themselves do not cause the trouble, although they delayed healing when applied after an abrasion of the skin. The brown and green inks delayed healing longest, and the black for the shortest time.

All inks, irrespective of color, when removed by the methods in vogue at the plant at the time of this study caused an irritation, and in one case a dermatitis, among those with dry skin.

The degree of dermatosis apparently depends upon the dryness of the skin, the amount of linseed oil in the ink, and the method of removing the ink. It is believed that the reason why some men develop the condition in a short time and others after a long period of time lies in the degree of natural oiliness in the skin of the individual. Again, with those who use the black ink, which has the largest proportion of oil of all the inks, the trouble is further delayed. It may be that the drier in the inks has a tendency to extract the oil from the skin of some individuals. Those who do not wear gloves when cleaning the plates with benzol may more readily acquire a dryness of the skin. The dry skin might be compared with a blotter, which very readily absorbs the oil in the inks and the pigments which are carried with the oil. These pigments, in turn, are obviously removed from a dry skin with more difficulty than they are from a skin which is already oily and which absorbs little or no additional oil from the inks. More scrubbing is required in the case of the dry skin, and a dermatitis soon begins. The inks retard healing, and from repeating the process daily a severe case of eczema may develop.

The oil supplied by the plant in no way contributed to nor influenced the dermatosis.

The prophylactic measures recommended, if used constantly and under supervision, will prevent the dermatosis.

The skin lesions respond readily to the treatment with calamine paint.

*Preventive Measures Recommended.* A supply of lanolin and olive oil in equal parts should be placed in suitable receptacles in the wash-room where the printers and those who handle the inks change their street clothes for work clothes. Before entering the press rooms, each worker should be required to rub lanolin well into the pores of the hands and arms. If the skin feels too greasy after this application, the excess may be wiped off with a clean cloth. At the luncheon period these workers should be supplied with a mixture of sawdust and liquid soap (the sawdust should be moistened with the soap), which, together with warm water, will readily remove the ink without injury to the skin. It is optional with the men to precede the sawdust and soap with the oil supplied by the plant. Before entering the press rooms, the first process described above should be repeated; and at the end of the shift, the second, or cleansing, process should be repeated. The foremen in these rooms should be responsible for their helpers carrying out the preventive measures.

*Treatment.* As soon as the foreman notices an incipient eruption on the hands or arms of any worker in his department, he should insist that the worker report to the medical officer, who will furnish him with the compound referred to above, and instructions for its use.—William J. McConnell, *Public Health Reports*, Vol. 36, No. 18, May 6, 1921, pp. 979-989.



**Lengthening Life Through Insurance Health Work.**—A study of the trends of mortality among policyholders in the Metropolitan Life Insurance Company and in the United States Registration Area, 1911 to

why and wherefore of these differences. The scope of work has enlarged much beyond the boundaries of occupational disease, but the guide-post is the same. To-day industrial medicine is recognized to be directly aimed at preventing disease and maintaining health. The inclination to associate the subject of industrial medicine only with occupational diseases is unfortunate. It is true they are important in drawing public attention and they have established a guide-post of industrial hygiene. The tendency in the past has been to shift the burden of responsibility onto some insurance agency; but the latest compensation scheme under the Workmen's Compensation (Silicosis) Act, 1918, places upon industry—the refractory industry in this case—the responsibility of shouldering its own insurance. Action on these lines will probably prove a direct incentive to industry to lighten the liability by actively pursuing preventive measures.

A labor turnover of the 20,000,000 industrial persons of 100 per cent at £5 per head comes to £100,000,000 a year. This high labor turnover is unnecessary, as has been shown both in the United States and Great Britain. It falls to 30 per cent where medical supervision of entrants and hygienic conditions of employment exist. This would mean a saving of £70,000,000 a year. It has been established by careful inquiry that the underlying cause at the back of lost time is either certificated sickness or that condition of lowered health which precedes sickness. Various estimates of lost time have been made. The loss of 4 per cent means 80 hours, which comes to £4. Ten million persons at £10 means £100,000,000. Ten millions at £4 means £40,000,000. The difference, £60,000,000, represents what may be easily attained by medical supervision in industry. On these two items alone there is a possible saving of £130,000,000 a year. Convalescence can be expedited both mentally and physically by graduated activity of an interesting nature, and the best form of interest is remuneration for work done, which is to-day precisely the form of activity prohibited for the industrial convalescent. The result is that to-day enormous sums of money, which there are no means for estimating accurately, are expended in retarding convalescence. The proposition is put forward that industrial medicine properly ap-

plied can effect a saving each year on labor turnover of from £60,000,000 to £70,000,000; on lost time of £50,000,000 to £60,000,000; and through industrial convalescence of many millions more.

The trend of thought to-day is against nationalization of industries, but industries must realize that while maintaining their independence they take over at the same time certain responsibilities in regard to those employed which under nationalization would be undertaken by the state. Full recognition of these responsibilities would entrench the position of industrial independence. Failure in this matter, quite apart from economic waste, must sooner or later cause those employed to demand reconstruction of modern industrial organization. In very truth the community to-day greatly needs an industrial medical service; it needs it in the interests of health; it needs it in the interests of economy; it needs it in the interests of industrial efficiency; it needs it in the interests of social contentment.—E. L. Collis, *Lancet*, Sept. 3, 1921, pp. 487-89.



**Blood Pressure in Lead Poisoning.**—The absence of high incidence of diseases of a type which might be attributable to lead, namely, those in the alimentary and nervous sections, together with the high incidence in the respiratory type, is a little difficult to reconcile with the supposedly high incidence of lead poisoning among painters as a whole, as it would seem that if lead poisoning were a serious feature in the painting trade it should show in a block of figures of this type.

In a recent examination of white lead workers and painters the average blood pressure of the painters in the same age-groups was found to be higher than that of lead workers. This is a suggestive point; the constant inhalation of vapors of volatile fluids, among which are compounds of the benzine and paraffin series, is conducive to renal affection and high arterial tension. The higher arterial tension of painters is the more striking in that painter's work is much less severe, less muscular effort being required in using a paint-brush than in carrying half-hundred-weights of lead or huge baskets filled with wet tan.

One further statistical fact, culled from the 1911 figures of the Registrar-General's re-

from those found in any other mine on the reef, except the E. R. P. M., from the fact that it is so large. It extended over seven miles, and in that seven miles 15,000 boys were distributed into six compounds. Therefore it was nearly impossible to centralize as much as one would wish to. There were nearly 1,000 beds in hospitals, and about 800 boys per month who were suffering from accidents were admitted. Apart from that, there were something like 1,000 dressings per day, and sometimes 1,200 done in the compounds. Dr. Butt was more than ever convinced that the primary infection occurred at the seat of the accident and at the time of the accident. He felt that more attention should be given to treatment of the original wounds of the natives, particularly to the small wounds, which often gave as much trouble as any other. And in the treatment of the small wounds of the native he wished to emphasize the extreme importance of the training of the underground native boy. He had always been a little disappointed in so-called "first-aid men" (Europeans). A "first-aid" man often obtained only a superficial knowledge at a course of lectures, and while of value in serious accidents, whether to European or native, if he happened to be on the ground, was of no value whatever in treating the small mine wounds of the underground native, because he did not take the slightest interest in the native. Neither was he interested in a case in which a wound was being dressed by any boss boy. This seemed to Dr. Butt to be a great failing in European first-aid men. These men were specialists when they had big accidents, but they were useless for prevention of sepsis. The system that he had endeavored to start, and which was running more or less satisfactorily, was that the boss boys who had been trained, or were about to be trained, were carrying the usual first-aid box, which was given to them when they went on shift and put into the compound when they came off shift, when it was replenished. Once dressed in the compound a boy could not escape, because his number was taken, a record was kept in the dressing-room of the compound, and if he did not appear the next day he was sought for. A recent count of wounds dressed in the compounds showed the number to be 1,429 per day. In treating a wound, the

skin had been painted with iodine and the wound swabbed with it. With another iodine swab the wound had been painted and thoroughly cleaned. By this means the wound had a clear and clean area around it and a more or less iodized coating. The dressing—white precipitate ointment, half-strength of B. P.—was next applied. That was spread on lint and placed on the wound after it was iodized. No other treatment was given. Dr. Butt felt that this treatment had been astonishingly successful. It seemed to keep out water and dirt to a large extent, and, moreover, was very cheap. Dr. Butt stressed the necessity of efficient nursing, whether male or female. Although when he first started he was a supporter of European female nursing, since he had managed to collect European males together—he might have been luckier than others—he had been astonished at what they could do when they tried. He had a superintendent whom some of them knew, who had opened his eyes as to what a qualified man could do in nursing. Dr. Butt felt that the root of the whole matter was to treat wounds as septic until they had proved that they were not, and also to see that nursing of major cases was done by Europeans. Dr. Butt wished it understood that his remarks were simply from his own experience, and were not to be construed as in any way a criticism of anyone who had preceded him.

Dr. Watkins said that in regard to sepsis he would like to give a suggestion which came from no medical man at all. He happened to be in Egypt at the time that the Assouan Dam was being built by the late Sir John Aird. In connection with this piece of construction there was an enormous number of shin accidents, the remedy for which came entirely from the Indian overseer. There was nothing in the Tropics like the sepsis that there was here, but it was of a different character. The system adopted at Assouan was this: The Indian overseer used to boil castor oil, as he said, "to kill anything that was bad in it." Then he made a 1 per cent solution of mercury in oil, and in that was soaked plain white lint. He found that it was a mistake to use the absorbent wool given him by a Scotch doctor, and therefore bought non-absorbent wool, which surrounded the little pads of mercurialized castor oil, and acted as a waterproof dressing to the wounds.

# PUBLIC HEALTH LABORATORY NOTES

Abstracted by ARTHUR LEDERER, M. D.

**Comparison of Formol and Wassermann Reactions in Diagnosis of Syphilis.**—Of the total number of positive reactions obtained by the formol reactions of Gaté and Papacostas, only 37 per cent agreed with the positive results obtained by the Wassermann method. A large number of formol positives (44 or 8.8 per cent of total) were of the single plus type, and of these 13 (or 29.5 per cent) were positive by the Wassermann method. These weakly positive reactions tend to induce confusion, as it is often difficult to interpret these reactions. The reaction as it stands is of no diagnostic value because of its failure to react in clinically and serologically clear-cut cases of syphilis, and the occurrence of positive reactions in the absence of the disease.—Enrique E. Ecker, *Jour. Inf. Dis.*, 29, 359 (1921).

✦

**Immunologic Comparison of Saline and Lipoid Typhoid Vaccines.**—The antigenic properties of typhoid lipovaccine in rabbits are not equal to those of saline vaccine. No agglutinins or fixation antibodies appear in the serums of those vaccinated with lipovaccine, while in those vaccinated with saline vaccine the mean agglutination titer is 1 to 160. Animals vaccinated with lipovaccine, whose serums show no agglutinin contents, are nearly as well protected against becoming carriers as those vaccinated with saline vaccine whose serums show high agglutinin contents. Even in the latter animals, the agglutinin contents varies in the degree inversely with the protection afforded. Therefore, the agglutinin titer is certainly not a measure of protection.—Jeannette N. Gay, *Jour. Inf. Dis.*, 29, 417 (1921).

✦

**A New Method for the Staining of Bacterial Flagella.**—The stain is prepared as follows:

Tannic acid .....	10	gms.
Aluminum chloride (hydrated)...	18	gms.
Zinc chloride .....	10	gms.

Rosaniline hydrochloride .....	1.5	gms.
Alcohol 60 per cent.....	40	cc.

The solids are placed together in a mortar and at once triturated with the alcohol. Ten cc. of alcohol are used first and the mass is mixed thoroughly, care being taken to smash up the whole of the zinc chloride; the rest of the alcohol is then stirred slowly, when the mass goes gradually into a viscous solution of deep red color. In this state the stain appears to remain stable for several years. The slides used must be scrupulously clean. The method of applying the stain is given in detail.—H. G. Plimmer and S. G. Paine, *Jour. Path. Bac.*, 24, 286 (1921).

✦

**Observations on the Wassermann Test Using Ice-Box Fixation.**—It appears that the chief value of the cold fixation technic employed in this investigation is as a test of cure in well-treated cases. The possible occurrence of a slight degree of non-specific fixation must, however, always be borne in mind.—E. J. Wyler, *Jour. Path. Bact.*, 24, 349 (1921).

✦

**Bacteria on Subsidiary Coins and Currency.**—There seems to be little basis for the belief that coins bear any close relation to the spread of disease. The indicators of pollution used in sanitary investigations were entirely absent in the coins used in this investigation. Thirty-seven of the strains of micro-organisms isolated from the coins were spore-formers, and probably spores are necessary before the organism may perpetuate itself for any considerable length of time on coins. This may explain why none of the commonly accepted indicators of pollution were found. *B. anthracis* was able to live for eight days on pennies and seventy-one days on nickels, when the experiment ended. The greatest factor tending to control the types and numbers of micro-organisms on coins seems to be the metal of which the coins are made.—Charlotte B. Ward and Fred W. Tanner, *Am. Jour. Med. Sciences*, 162, 585 (1921).

medium than those obtained from legumen medium. This may have a bearing on the production of antiscrums. Emulsions of meningococci in physiologic solution of sodium chlorid made with freshly distilled water heated to 65 C. for twenty minutes, standardized numerically, and then preserved with 0.5 per cent phenol have remained unchanged as to numbers, and sterile for five years. At the end of this period, the agglutinability and agglutinogenic capacity persist practically unaltered.—I. W. Hall and G. E. Tilsley, *Lancet* (London), 201, 494 (1921); *Jour. A. M. A.*, 77, 1134 (1921).

✦

**Blood Test in Diabetes Mellitus.**—Twenty c.mm. blood are mixed with 1 c.c. of a 1:6,000 aqueous solution of methylene blue and 40 c.mm. liquor potassae. The mixture has a deep, definite blue or bluish green color. The tube containing the mixture is placed in a water bath, and the water kept boiling for four minutes. If the blood sugar is decidedly increased, the blue color of the mixture will change to brownish yellow (almost the color of normal urine). When the blood sugar is not increased the mixture tube retains its blue or bluish green color.—R. T. Williamson, *Practitioner* (London), 107, 169 (1921); *Jour. A. M. A.*, 77, 1135 (1921).

✦

**Bilirubin Colorimeter.**—The author uses 0.05 parts of potassium bichromate in 500 parts distilled water with 2 drops of sulphuric acid. The bilirubin content of the blood is shown by the number of 0.5 c.c. of physiologic sodium chlorid solution that has to be added to the plasma to bring the tint to correspond. He expatiates on the simplicity and the importance of the test in revealing the insidious passage of bile into the blood.—E. Mculengracht, *Deutsch. Archiv f. klin. Med.*, 137, 38 (1921); *Jour. A. M. A.*, 77, 1141 (1921).

✦

**Observations on Bacillus Botulinus Infection of Canned Spinach.**—*Bacillus botulinus*, type A, is able to multiply and to produce its characteristic toxin in canned spinach, although the development of the organism in this food product was found to be somewhat irregular. In some instances there was evidence of a rapid multiplication, while in others there was apparently neither

growth nor toxin formation. In all of the latter cases, however, the organism was found to be viable. A temperature of 37 C., as contrasted with room temperature, accelerated the development to a certain extent. When multiplication had progressed readily, 0.5 c.c. of the spinach juice per os proved sufficient to kill guinea-pigs, usually within eighteen hours. The growth of *B. botulinus* in canned spinach is accompanied by the evolution of gas as well as by the elaboration of the specific toxin. In only one instance had toxin formation advanced to such a stage as to produce a fatal result, while at the same time gas production either had not occurred or was insufficient to cause bulging of the can. Of 174 samples of canned spinach taken from suspected lot, *B. botulinus* or its toxin was found in six. In every case, the organism was of the A type. These six toxic cans were all "hard swells," and when opened, the odor was distinctly offensive. The destruction of foodstuffs deemed to be abnormal, either by appearance of the containers or by the odor, should prevent the greater number of the outbreaks of botulism. From the public health aspect of the problem, the last point is of especial importance.—S. A. Koser, R. B. Edmondson and L. T. Giltrair, *Jour. A. M. A.*, 11, 1250 (1921).

✦

**Determination of Sugar in Urine.**—In this method the urine is diluted so that the specific gravity does not exceed 1.030. Fifteen c.c. is treated with about 1 gm. bone-black (smaller quantities of both may be used if desired). The mixture is shaken vigorously occasionally for from five to ten minutes, and then filtered through a small dry filter into a dry flask or beaker. From 1 to 2 c.c. of the urine filtrate is measured into a test-tube which is graduated at 25 c.c., and if the volume used was less than 3 c.c. enough water is added to make the volume exactly 3 c.c. Then exactly 1 c.c. of 0.6 per cent picric acid solution (best prepared from dry picric acid) and 0.5 c.c. of 5 per cent sodium hydroxid solution are added. Just before the tube is ready to be placed in boiling water 5 drops of 50 per cent acetone (this should be prepared fresh every day or two by diluting some pure acetone with an equal volume of water) is added, care being taken that the drops fall into the

solution and not on the sides of the tube. The tube is shaken gently to mix the contents, and placed immediately in boiling water for from twelve to fifteen minutes. The standard solution is simultaneously prepared by treating 3 c.c. of pure glucose solution (containing 1 mg. of the sugar) exactly as described for the unknown solution and heating simultaneously. The pure glucose solution containing 1 mg. of the sugar in 3 c.c. of the solution will keep indefinitely if preserved with a little toluene. The authors have not been able to find a colored solution which matches the colored product of the reaction and which is permanent.—S. R. Benedict and E. Osterberg, *Jour. Biol. Chem.*, 48, 51 (1921); *Jour. A. M. A.*, 77, 1283 (1921).



**The Counting of Blood Cells and Bacteria.**—The first method of the indirect type to be described was that of Wright. By substituting hen's erythrocytes, with their distinctive appearance, for human red cells as the standard suspension; by preparing them in such a way that they form a stable, unchanging standard suspension; by enumerating the standard suspension with great precision in an accurate counting chamber; by mixing standard suspension in measured proportion with the suspension to be enumerated, and counting them in the wet state, a very accurate method for the enumeration of human red cells and bacteria is achieved without sacrificing any of the rapidity of Wright's technic. The method of counting human red cells and bacteria as described, when carried out carefully according to the directions given, yields results unsurpassed in accuracy by any other available method. Quicker and less fatiguing than the counting chamber, it is equally available for the counting of erythrocytes and leukocytes and bacteria.—Georges Dreyer, *Jour. A. M. A.*, 77, 1167 (1921).



**Bacteria on Coins.**—The authors state that there seems to be little basis for the belief that coins bear any close relation to the spread of disease. The indicators of pollution used in sanitary investigations were entirely absent on the coins used in this investigation. The flora of coins seem to be made up almost entirely of microorganisms which form spores,

it being shown for instance that *Bacillus anthracis* was able to live for 80 days on pennies and 71 days on nickels, when the experiment ended. The greatest factor tending to control the types and numbers of microorganisms on coins seems to be the metal of which the coins are made. The coins passing from person to person in general circulation come in contact with acids and alkalis, with the formation of soluble salts on their surfaces, these salts tending to keep down the bacterial flora. In making the examinations from which these results are concluded, glass-stoppered bottles containing 25 c.c. of water, and about 5 grams of sand were sterilized. The coins were placed in these bottles and shaken for five minutes. After shaking, the sand quickly settled and the water in the bottle was plated out on the usual laboratory media.—Ward and Tanner, *American Journal of Medical Science*, October, 1921.—(H. N. C.)



**Growth Accessory Substances in the Cultivation of Hemophilic Bacilli.**—The hemophilic bacteria of which *B. influenzae* serves as a type required for their growth two distinct and separable substances, both of which are present in blood and neither of which alone suffices. These substances are (1) a vitamine-like substance which can be extracted from red-blood corpuscles, from yeast, and from vegetable cells, which is relatively heat-labile and absorbed from solution by certain agents; (2) a so-called X-substance which is present in red-blood cells, is heat-stable and acts in minute amounts.—Theodore Thjötta and O. T. Avery, *Jour. Exp. Med.*, 34, 97 (1921).



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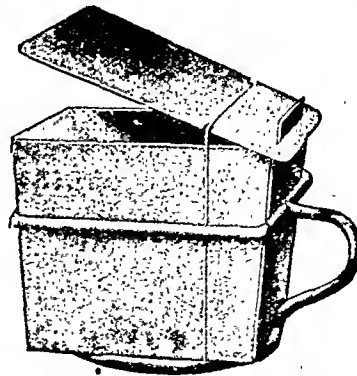
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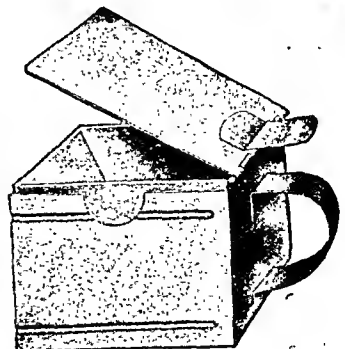
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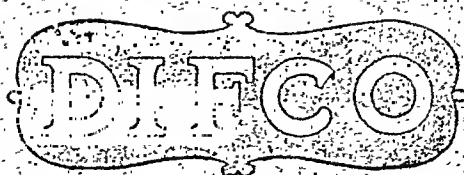
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